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CENSUS OF THE BRITISH ISLES, 1871. BIRTHPLACES AND MIGRATION.

THE voluminous Census Returns for the year 1871 do not appear to have been studied hitherto as carefully as might have been expected, considering the valuable information that is laid down in them. A few abstracts of the tables relating to the population of the counties and towns, &c., have been printed, but no analysis of either the birthplaces of the people nor of their occupations has been published, as far as we know, except what appears in the shape of an official introduction to the Census Returns themselves. Nor need this be wondered at. The Census Returns are not only voluminous (they fill eleven huge volumes), but their arrangement, in numerous instances, is such as to render the task of a conscientious analyser, anxious to arrive at the truth, one of exceeding difficulty. Nay, in spite of fearfully long arrays of figures, the census does not always furnish information on points of real interest, and we cannot help thinking that it would have been advisable to suppress some of the information in favour of information of a different kind, which would have proved of more general utility when instituting statistical inquiries. It is impossible, for instance, to trace the natives of any particular county throughout the United Kingdom. The returns of occupations for the towns and Registrar's districts of England and Wales are confined to males and females aged twenty years and upwards, and the total number employed in each trade is omitted. Of the two we should certainly have preferred the latter. The value of the tables referring to "foreigners" is rendered problematical, as "naturalised British subjects" have been excluded from them, &c.

We propose in this paper to deal with the birthplaces of the people, and to trace the migration going on within the United Kingdom, particularly with reference to our large towns.

TOTAL POPULATION.

The population with which we have to deal numbered, in 1861, 29,070,932 souls; in 1871, 31,629,299 souls. It was distributed as follows:—

	1861.	Per cent.	1871.	Per cent.
England and Wales ...	20,066,224	69·02	22,712,266	71·81
Scotland ...	3,062,294	10·53	3,360,018	10·62
Ireland ...	5,798,967	19·95	5,412,377	17·11
Man and Channel Islands	143,447	0·50	144,638	0·46
	29,070,932	100·00	31,629,299	100·00

BIRTHPLACES OF THE PEOPLE.

According to their places of birth this population was divided as follows:—

Natives of	1861.	Per cent.	1871.	Per cent.
England and Wales ...	19,246,830	66·27	21,849,518	69·08
Scotland ...	2,973,166	10·23	3,296,387	10·42
Ireland ...	6,531,811	22·47	6,085,395	19·24
Man and Channel Islands*	130,405	0·45	139,322	0·44
All other parts	188,720	0·58	258,677	0·82
	29,070,932	100·00	31,629,299	100·00

This table shows very clearly that the natives of England and Wales, and to a smaller extent also those of Scotland, have increased between 1861-'71 approximately in proportion to the general population, whilst those of Ireland have decreased. This fact is explained sufficiently by the extent of emigration to foreign parts which has been going on during the last ten years from each of the three kingdoms. The number of emigrants of British birth who left the British Islands during that period (1861-'71) is estimated at 1,675,049 souls, of whom 650,166 were English and Welsh, 157,838 Scotch, and 867,045 Irish, and whilst the annual emigration from Ireland amounted to 15·6 per cent. of the mean population of these years, it only reached 4·9 per cent. in Scotland, and 3·0 per cent. in England, its amount for the whole of the United Kingdom having been 5·5 per cent.† If this difference in the extent of emigration had not existed, the number of natives of Ireland enumerated in 1871, as compared with 1861, would actually have exhibited an increase. In reality, however, the number of "Irish" is much larger now than it was in 1861, for the children of the natives of Ireland born in England and Scotland are naturally enumerated as "natives" of these latter countries. Nor should it be forgotten that "natives of Ireland" and "Irish" are not equivalent terms, the former excluding the children of Irish parentage born in Scotland and England. If these latter were added to the "natives of Ireland" figuring in the census, as ought to be done when considering the ethnological composition of the population of the British Isles, the Irish element would occupy a far more prominent position in our population returns than it actually does.

Again, comparing the two tables given, it appears

* This is exclusive of natives of Man and the Channel Islands residing in Ireland, which are included in the Irish Returns amongst persons born abroad.

† Mean population of the United Kingdom between 1862-'71, 30,281,131 souls.

that if the natives of the three kingdoms and of foreign parts were to return to the land of their birth, the population of England and Wales would suffer a decrease of 3·8 per cent., that of Scotland of 1·9 per cent., whilst that of Ireland would gain to a corresponding extent. And this decrease would be even more considerable if, in addition to the natives of Ireland and foreign parts, those of Irish or foreign parentage likewise were to leave.

In the following table we show the distribution of the natives of England and Wales, Scotland, Ireland, &c., within the limits of the British Isles:—

		Number.	Per cent.
Natives of England and Wales residing in	County of their birth	15,886,461	72·72
	Rest of Engl. and W.	5,805,704	26·57
	Scotland	70,482	0·32
	Ireland	67,881	0·31
	Man and Channel Is.	18,990	0·08
		21,849,518	100
Natives of Scotland residing in	County of their birth	2,315,458	70·25
	Rest of Scotland ...	746,073	22·63
	England and Wales	213,254	6·47
	Ireland	20,318	0·61
	Man and Channel Is.	1,284	0·04
		3,296,387	100
Natives of Ireland residing in	County of their birth	4,704,959	77·31
	Rest of Ireland ...	601,798	9·89
	England and Wales...	566,540	9·31
	Scotland	207,770	3·42
	Man and Channel Is.	4,328	0·07
		6,085,395	100
Natives of Man* and Channel Islands residing in	Island where born ...	111,000	79·68
	Other Islands	1,938	1·39
	England and Wales...	25,655	18·41
	Scotland	729	0·52
	Ireland	?	?
		139,322	100
Natives of British Colonies and East Indies residing in	England and Wales...	70,812	78·41
	Scotland	9,740	10·77
	Ireland	8,367	9·27
	Man and Channel Is.	1,394	1·55
		90,313	100
Natives of Foreign Parts residing in	England and Wales...	139,445	85·60
	Scotland	9,149	5·62
	Ireland	8,643	5·31
	Man and Channel Is.	5,647	3·47
		162,884	100
"Born at Sea," residing in	England and Wales...	4,395	80·20
	Scotland	617	11·26
	Ireland	411	7·50
	Man and Channel Is.	57	1·04
		5,480	100

We add to the above tables one other, which exhibits the actual number of the population of towns and of the remainder of the country, classified according to place of birth:—

Born in	London. Number.	Per cent.	62 other Towns of England and Wales. Number.	Per cent.
England and Wales	3,029,260	93·09	4,296,787	92·18
Scotland	41,029	1·26	73,449	1·58
Ireland	91,171	2·80	229,689	4·93
Man and Channel Is.	5,170	0·16	9,685	0·21
Colonies	20,324	0·62	15,239	0·32
At Sea	1,205	0·04	1,154	0·02
In Foreign Parts ...	66,101	2·03	35,404	0·76
	3,254,260	100·0	4,661,407	100·00

Born in	21 Towns of Scotland. Number.	Per cent.	4 Towns of Ireland. Number.	Per cent.
England and Wales	35,757	2·83	18,737	3·41
Scotland	1,097,012	86·92	7,441	1·35
Ireland	119,525	9·47	519,857	94·43
Man and Channel Is.	398	0·03	?	?
Colonies	5,213	0·41	2,007	0·37
At Sea	2,825	0·23	129	0·02
In Foreign Parts ...	1,423	0·11	2,289	0·42
	1,262,153	100·00	550,460	100·00

Born in	In 88 Towns of the British Isles. Number.	Per cent.	In Remainder of Country. Number.	Per cent.
England and Wales	7,380,541	75·86	14,468,977	66·07
Scotland	1,218,931	12·53	2,077,456	9·49
Ireland	960,242	9·87	5,125,153	23·40
Man and Channel Is.	15,253	0·15	124,069	0·56
Colonies	42,783	0·44	47,530	0·22
At Sea	5,313	0·05	167	—
In Foreign Parts ...	105,217	1·10	57,667	0·26
	9,728,280	100·00	21,901,019	100·00

Conclusions from this set of tables must be drawn with caution, for the information which they convey is far from complete, and very unequal as regards the three kingdoms.* We are safe, however, in forming from them an opinion respecting the composition of the town population of Great Britain, with its large ingredient of natives of Ireland.

The National Element of the Population in the Four Great Divisions of the British Isles.

The four great divisions referred to are England and Wales, Scotland, Ireland, and Man with the Channel Islands (officially called Islands in the British Seas). The national element of the population of each of these divisions consists of the inhabitants born and resident in it. Of the entire population of the British Isles no less than 30,173,391 persons, or 95·4 per cent., find themselves in that position, that is to say, they reside in the division (or kingdom) in which they were born. The numbers and proportion for each of the great divisions are as follows:—

	Numbers.	Proportion of Total Population.
England and Wales	21,692,165	95·53 per cent.
Scotland	3,061,531	91·12 ,,
Ireland	5,306,757	98·00 ,,
Man and Channel Islands	112,938	78·10 ,,
British Isles	30,173,391	95·40 ,,

These proportions are just what might have been expected. The natives of Ireland have been least encroached upon by immigrants from the sister kingdoms or from abroad, whilst Scotland has profited most largely, and England to a smaller extent (as far as mere numbers go) by an influx of immigrants from the sister isle. It should be stated, however, that this influx of Irish immigration has apparently passed its zenith, and is going on now at a much more diminished rate than was the case some fifteen years ago.

* We should have liked to separate Man from the Channel Islands, but the Census Returns, in spite of their immense bulk, do not admit of this, and the population of the two, though differing in race and language, and having no common bond except that of being dependencies of the British Crown, are thrown together, and are treated as if they were one whole.

* This would not have been the case had we been able to obtain the birthplaces of the inhabitants of all large towns. The Census Returns for England profess to give this information for the "principal cities and towns," but no less than 30 towns having upwards of 25,000 inhabitants, and including places like Salford and Oldham, have been omitted, whilst others of far less importance have been admitted. This curious fact vitiates, to some extent, the whole of our statistics, for we were obliged to include the inhabitants of some of these ignored cities amongst the rural population of the counties.

Our figures show very clearly that the national element is strongest in Ireland. Ireland, in fact, is more intensely Irish than Scotland is Scotch, or England English. In twenty-six of its counties, out of a total of thirty-two, the national element embraces more than 98 per cent. of the total population, and only in two counties does it fall below 95 per cent. These two are Dublin and Kildare, and the depression of the rate there is sufficiently explained by the presence of numerous strangers in the capital of the kingdom, and of a strong military force at the Curragh of Kildare. The most intensely Irish counties are Leitrim and Meath, where the natives of Ireland constitute 99·6 per cent. of the population.

In Scotland there are only ten counties, out of a total of thirty-three, where the Scotch national element constitutes over 98 per cent. of the population, whilst in eleven counties it falls short of 95 per cent. The depression is greatest in Lanarkshire, Renfrew, and the rural portion of Ayrshire, where a large inflow of the Irish element has taken place. The most intensely Scotch counties are Shetland, Sutherland, Orkney, Ross, Cromarty, and Banff, in all of which the national element musters 99 per cent. or more, and a similar proportion is to be found in the rural portion of Aberdeenshire. The most intensely Scotch towns are Forfar (national element 99·3 per cent.), Montrose (97·4 per cent.), Kirkcaldy (96·9 per cent.), and Arbroath (96.7 per cent.); those least so are Dumbarton (79.7 per cent.), Greenock (80·1 per cent.), Glasgow (81·9 per cent.), Airdrie (84·4 per cent.), and Dundee (85·9 per cent.) In Edinburgh 89·9 per cent. of the population are of Scotch birth.

In England and Wales there are thirty-four counties, out of a total of fifty-three, where the national element includes more than 98 per cent. of the population, and nine counties where it falls short of 95 per cent. It exceeds 99 per cent. in Cardigan (99·6 per cent.), Radnor, Montgomery, Rutland, Merioneth, Hants, Cambridge, Beds, Carnarvon, Bucks, Oxford, Norfolk, and Wilts, as well as in the rural portions of Suffolk and Somerset; and is weakest in Northumberland, Cumberland, and the extra-metropolitan portion of Surrey, where it does not exceed 90 per cent. The most intensely English towns are Norwich and Yarmouth (national element 98·8 per cent.), Salisbury (98·7 per cent.), Bury St. Edmunds (98·6 per cent.), Ipswich (98·5 per cent.), Reading and Boston (98·4 per cent.), Cambridge and Dudley (98·3 per cent.), Exeter (98·2 per cent.), Oxford, Leicester, and Truro (98·1 per cent.). The national element, compared with the total population, is weakest in Liverpool, where it forms only 77·5 per cent., in Carlisle (85·8 per cent.), Newcastle-on-Tyne, Gateshead, Middlesborough, Tynemouth and Sunderland, and in Newport. In the Metropolis, which forms a registration county of its own, the English national element constitutes 93·1 per cent. of the entire population; but as the latter is numerous, the foreign elements forming part of the population of London far exceed those to be met with in any other part of England, as far as actual numbers go, and the character of London is truly cosmopolitan, though the proportion this cosmopolitan element bears to the general population is less than in many provincial towns.

THE LOCAL ELEMENT IN THE POPULATION OF COUNTIES AND TOWNS.

By "local element" we understand those inhabitants of a county who are natives of it; or of a town, who have been born within the county in which the town is situated. In the case of towns lying within two counties, we have included natives of both under the term of local element. We should have liked to give, in addition, the number of persons born in each town, but this information is not given in the Census Returns for the whole of the United Kingdom.*

On analysing the Census Returns we find that 23,017,878 persons, or 72·77 per cent. of the total population of the British Isles, reside within the counties in which they were born. The numbers and proportions for each of the four great divisions of the British Isles are as follows:—

	Numbers.	Proportion of Total Population.
England and Wales	15,886,461	69·94 per cent.
Scotland	2,315,458	69·47 ,,
Ireland	4,704,959	86·93 ,,
Man and Channel Islands	111,000	76·76 ,,
	23,017,878	72·77 ,,

The extremes, as far as counties and towns are concerned, can readily be traced upon Map I., and more precise details will be found on reference to Table I., column 2, and Table II., column 2, appended to this paper. The yellow tint covers those counties and towns where the local element approximates the average existing throughout the British Isles. Counties and towns where it is stronger are tinted blue; where it is weaker, red. A glance at this map will show that the local element is strongest in the most remote counties. The dark blue tints, covering nearly the whole of Ireland, the northern extremity of Scotland, South-western Wales, Cornwall, Lincoln, and Suffolk, distinctly prove this to be the case. The remoteness of these districts would appear to account sufficiently for this fact, but we shall discuss this question in connection with that of migration, which embraces it. We confine ourselves for the present to giving a list of those counties and towns of Great Britain, the local element of whose population exceeds 85 per cent. of their total population, or falls short of 55 per cent. They are:—

	Entire Counties†	Rural parts of Counties.		Entire Counties.	Rural parts of Counties.
Shetland ...	98·0	98·0	Pembroke ...	86·3	86·3
Orkney ...	94·5	94·5	Fife	86·3	84·0
Cornwall ...	91·2	91·9	Dumfries ...	86 0	85·9
Cardigan ...	90·9	90·9	Suffolk... ...	85·4	86·3
Ross and Cromarty ...	90·3	93·3	Lincoln ...	85·1	85·7
Norfolk ...	89·8	59·0	Inverness ...	83·9	89·0
Caithness ...	89·5	89·5	Renfrew ...	68·2	50·7
Anglesey ...	89·1	89·1	Yorkshire ...	59·0	51·3
Sutherland ...	87·1	87·1	Dumbarton ...	54·4	47·2
Wigtown ...	87·1	87·1	Peebles... ...	54·4	54·4
Aberdeen ...	86·7	88·9	Middlesex (extra Metro.)	41·6	41·6
Carmarthen ...	86·3	86·3	Selkirk... ...	39·5	39·5

* It has been given only in the case of a few Scotch towns. Amongst every 100 residents in the following towns there were born in them:—In Glasgow, 42·15; Edinburgh, 45·73; Dundee, 39·75; Aberdeen, 41·57; Greenock, 42·96; Paisley, 26·94; Leith, 52·49; Perth, 45·78.

† Entire counties include the towns situated in them; "rural parts" do not include the towns, for which details are given in Table I.

The towns are:—

Forfar	90·7	Gateshead	54·4
Huddersfield..	89·5	Stirling	53·9
Norwich...	88·5	Barrow-in-Furness ...	52·2
Yarmouth	88·5	Greenock	51·6
Truro	88·3	Middlesborough	50·1
Preston	86·3	Newport	49·8
Arbroath	85·1	Dumbarton	39·4

THE IRISH ELEMENT IN GREAT BRITAIN.

The Irish element in Great Britain is of such weight and importance that a separate chapter may appropriately be devoted to it. No less than 9·46 per cent. of the population of the principal towns of Scotland, 2·80 per cent. of that of London, and 4·93 per cent. of that of sixty-two other English towns, consists of natives of the Green Isle, and if to these were added the children of Irish parentage born in these kingdoms, and consequently figuring in the Census Returns as natives of Great Britain, their numbers would at least be trebled.

In 1851 there lived in Great Britain 727,326 natives of Ireland; in 1861, 805,637; in 1871, 774,310. There has been a considerable falling off in their numbers since 1861, as far as respects England and Wales, but a slight increase in Scotland. In 1871 there were enumerated:—

		Proportion of Total Population.
In England and Wales	566,540	2·49 per cent.
In Scotland	207,770	6·18 ,,
In Man and Channel Islands...	4,328	2·99 ,,
	778,638	2·97 ,,

They are most numerous, relatively to the total population, in Lanark, Renfrew, Dumbarton, and Ayrshire, in Scotland, and Lancashire, Cheshire, Durham, and Surrey, in England. As in America, they mostly love to congregate in large towns; and Liverpool with a native Irish population of 15·55 per cent., Manchester with 8·95 per cent., Greenock with 16·58 per cent., Glasgow with 14·32 per cent., and other towns in a similar position, have had ample opportunities to become aware of this fact.

One of the maps appended to this paper, as well as the table at the end of it, sufficiently illustrate the principal features in the distribution of the Irish element throughout Great Britain. They show that it has penetrated into every county, and that only a few amongst them, and the rural portions of a few others, have a native Irish population less than a quarter per cent. In the rural parts of two counties, and in six towns, it exceeds 10 per cent. of the total population.*

THE FOREIGN ELEMENT OF THE POPULATION.

The heading of this chapter is not perhaps quite appropriate, as we propose to consider in it all persons born abroad or at sea, without reference to their parentage or descent. The majority of this element of the population is, however, undoubtedly of foreign origin, though many amongst them may boast of British parentage.

In 1871 there were enumerated:—

	Total.	Females.
Natives of British Colonies and the East Indies	90,313	50,186
Natives of Foreign Parts	162,884	66,456
Born at Sea	5,480	2,889
Total	258,677	119,531

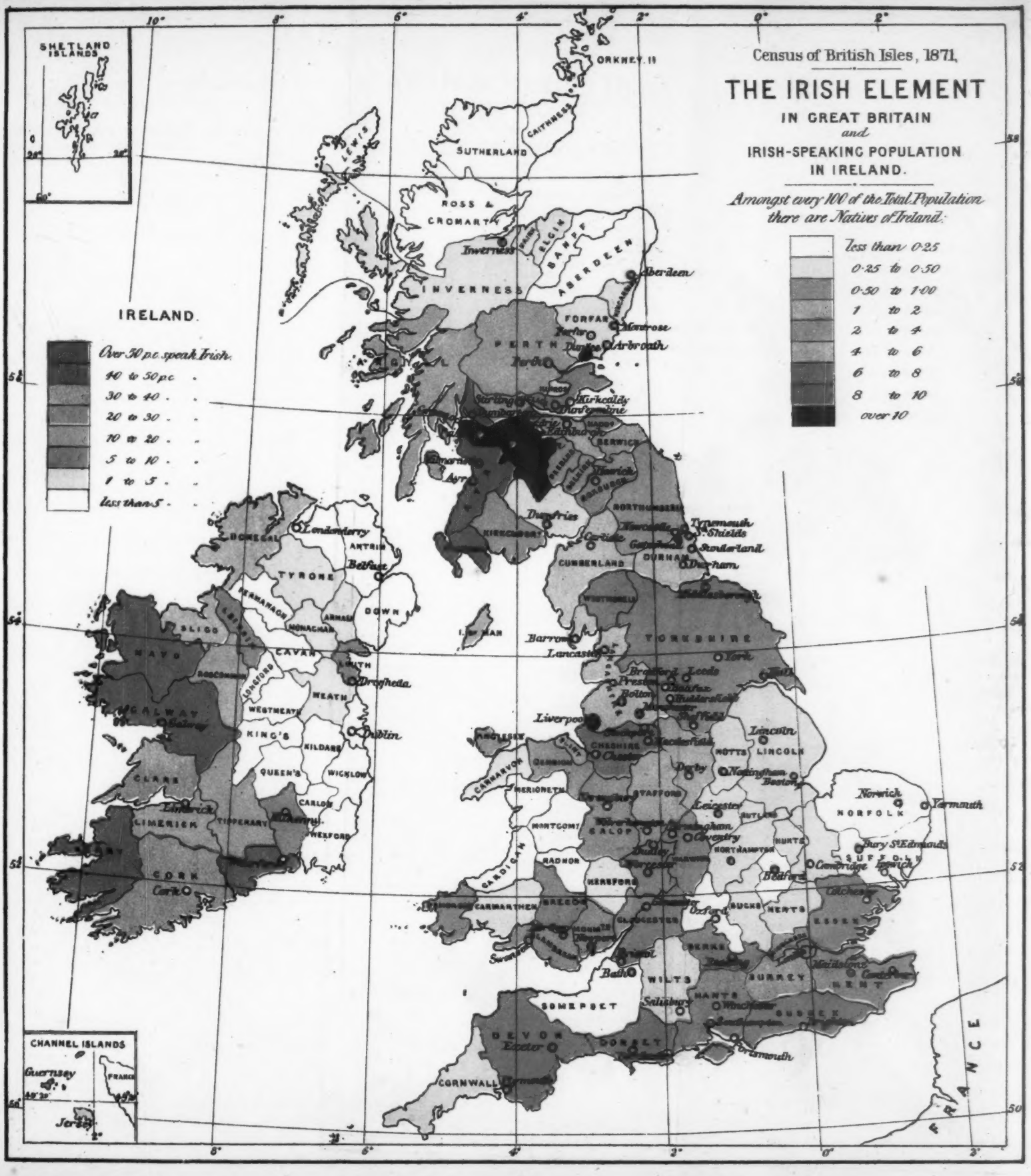
These three classes constitute only 0·81 per cent. of the total population of the British Isles, and if we bear in mind that there are included in them many persons of British birth as well as birds of passage,* such as sailors and travellers on pleasure or business, their influence upon the general character of the population might be supposed to be very small. Yet this influence has been going on for centuries.† Large numbers make this country their permanent home; and this foreign immigration must therefore exercise some influence upon the character of the general population, particularly in towns, "where foreigners most do congregate."

As regards the natives of the British Colonies and the East Indies residing in this country there can be no doubt that the vast majority amongst them are of British parentage. The large preponderance of females amongst them clearly points to this fact; and there can be no doubt that many officers and officials, whose duties take them to the Colonies, send many of their children to the mother-country to be educated, or to escape the unhealthy climate of their temporary place of abode. Amongst the persons "born at sea" the larger number is likewise of British parentage; and amongst the "natives of foreign parts," too, there must be many who cannot be looked upon as foreigners. The number of Englishmen whom business or pleasure takes into foreign countries, and who settle there permanently for a lengthened period, is exceedingly large. In Europe alone, as far as ascertained, there resided, about the period the Census was taken, 35,189 British-born subjects, including 16,512 females, and the returns were far from complete. It likewise is a usual occurrence for emigrants to return to this country from the United States with the members of their families born there. All these are included in the Census Returns as "born in foreign parts;" and we are therefore of opinion that the number of *bonâ fide* foreigners residing in this country is far less than would appear, at the first glance. Unfortunately, the Returns do not enable us to discriminate between persons of British parentage born abroad and those of foreign parentage. The returns for Great Britain and the smaller islands distinguish between British and foreign subjects born in foreign parts; the number of the former being 43,757, that of the latter 110,384; but this is no criterion of parentage or nationality, as any foreigner can become naturalised after a short residence in this country. Nor do these

* We have made use of the map, showing the distribution of the Irish, to exhibit likewise the Irish-speaking population in Ireland. According to the Census of 1871 there were no less than 817,875 inhabitants of Ireland, or 15·11 per cent. of the total population, who still spoke Irish, though most amongst them likewise understood English. Their proportion to the total population of the counties and principal cities varies between 56·48 per cent. in Mayo, and 0·11 per cent. in the Queen's County. They are most numerous in the west of Ireland, particularly in Donegal, Sligo, Mayo, Galway, Clare, Kerry, and Cork, and least numerous in the east. In 1851 the Irish-speaking population amounted to 23·3 per cent.; in 1861 to 19·1 per cent.; in 1871 to 15·11 per cent.; and we can therefore foresee the time when Irish will be numbered amongst the dead languages.

* Amongst 119,127 foreigners whose occupation is given in the Census Returns, there were 15,388 sailors.

† Already in 1580 no less than 5060 foreigners resided in London. The population of London did not exceed 150,000 at that time, and the proportion of foreigners was therefore about 3·4 per cent. as compared with 2 per cent. in 1871.


Census of British Isles, 1871.
THE IRISH ELEMENT
IN GREAT BRITAIN
and
IRISH-SPEAKING POPULATION
IN IRELAND.
Amongst every 100 of the Total Population there are Natives of Ireland:
Less than 0·25
0·25 to 0·50
0·50 to 1·00
1 to 2
2 to 4
4 to 6
6 to 8
8 to 10
over 10
IRELAND.
Over 50 pc. speak Irish.
40 to 50 pc.
30 to 40
20 to 30
10 to 20
5 to 10
1 to 5
less than 5
SHETLAND ISLANDS
CHANNEL ISLANDS
Guernsey
Jersey
FRANCE
ORKNEY. II
CAITHNESS
SUTHERLAND
ROSS & CROMARTY
INVERNESS
ELGIN
BANFF
ABERDEEN
FORFAR
PERTH
ARGYLL
BERWICK
NORTHUMBERLAND
CUMBERLAND
DURHAM
TYRONE
DONEGAL
ANTRIM
DOWN
ARMAGH
MONAGHAN
FERMANAGH
SLIGO
MAYO
CAVAN
LOUTH
LONGFORD
WESTMEATH
MEATH
GALWAY
KING'S
KILDARE
QUEEN'S
WICKLOW
CLARE
CARLOW
LIMERICK
TIPPERARY
WEXFORD
CORK
I. of MAN
YORKSHIRE
CHESHIRE
DENBIGH
CARNARVON
MERIONETH
FLINT
STAFFORD
NOTTS
LINCOLN
DERBY
MONTGOMERY
SALOP
RUTLAND
NORFOLK
HUNTS
SUFFOLK
CAMBRIDGE
RADNOR
HEREFORD
CARDIGAN
CARMARTHEN
BRECON
GLOUCESTER
OXFORD
BUCKS
HERTS
ESSEX
BERKS
WILTS
SURREY
KENT
SUSSEX
HANTS
SOMERSET
DEVON
DORSET
CORNWALL
Aberdeen
Inverness
Perth
Dundee
Arbroath
Montrose
Kirkcaldy
Edinburgh
Berwick
Dumfries
Tynemouth
South Shields
Sunderland
Durham
Londonderry
Belfast
Drogheda
Dublin
Galway
Limerick
Cork
Barrow
Lancaster
Bradford
Leeds
York
Preston
Halifax
Bolton
Huddersfield
Manchester
Sheffield
Liverpool
Chester
Lincoln
Derby
Nottingham
Boston
Norwich
Yarmouth
Leicester
Coventry
Birmingham
Wolverhampton
Dudley
Worcester
Bedford
Cambridge
Ipswich
Bury St. Edmunds
Oxford
Chichester
Bristol
Bath
Salisbury
Winchester
Portsmouth
Exeter
Torquay
Plymouth
Falmouth
Penzance
Land's End
Maidstone
Canterbury
Dover
Ramsgate
Margate
FRANCE

returns furnish any information with respect to the places of birth of these British subjects.

Of the 119,127 "natives of foreign parts,"* whose place of birth is stated, there were born in—

Europe	102,985	America	14,998
Asia...	447	Tahiti	1
Africa	602	Parts not known ...	94

Amongst the natives of European countries there were born in—

Germany	35,247	Sweden	2,235
France	24,327	Denmark	1,930
Poland	7,251	Austria	1,821
Holland	6,506	Spain	1,681
Italy	6,010	Greece	689
Norway	4,848	Turkey	548
Switzerland	3,570	Portugal	535
Belgium	2,742	Hungary	302
Russia	2,733		

The foreign element of the population has its representatives in nearly every county, but its chief centres are London (66,101), the Metropolitan counties (8051), Liverpool (7293), Manchester (4031), and Hull (2557). The places named contain thus 88,033, or more than half the persons "born in foreign parts," and enumerated throughout England and Wales. The foreign element is likewise strongly represented at Edinburgh and Glasgow, Dublin and Belfast.

E. G RAVENSTEIN.

(To be continued.)

STATISTICS OF DANISH GREENLAND.

WE have been furnished by Dr. Rink, the learned director of the affairs of Danish Greenland, with the most recent statistics of that interesting region—all the more interesting now, because our own Arctic Expedition passed along its shores, and received valuable aid from the Greenland officials.

South and North Greenland are each under an inspector, Mr. H. P. Stephensen and Mr. Krarup Smith, residing respectively at Godthaab and Godhavn or Lievely. These officers have under them the agents or governors of the different colonies. Of these there are five in South Greenland—Julianehaab, Frederikshaab, Godthaab, Sukkertoppen, and Holstenborg; and seven in North Greenland—Egedesminde, Godhavn, Christianshaab, Jacobshavn, Ritenbenk, Umanak, and Upernivik. In each colony there is a chief station with a church, school, and residence of the agent; and several permanently inhabited places are scattered along the fiords and islands. In the summer the Eskimo hunters and fishers live in tents, and are scattered much more widely.

The names of the permanently inhabited places in each colony are as follows, the chief stations being in small capitals, and the trading outposts in italics:—

* It would certainly be desirable to distinguish in any future Census between persons born abroad of British parents and those of foreign parentage. Political allegiance is only of secondary importance in a population return, for it can be thrown off at will, and does not change the blood. The numerous tables referring to "foreigners," their ages, occupations, and civil condition, would prove far more valuable if they embraced also "naturalised British subjects," and the members of alien races residing in some of the British Colonies.

SOUTH GREENLAND.

1.—JULIANEHAAB.

	Native Houses.	Natives.	Europeans.
Nunarsuit	2	32	—
Sakamiut	4	32	—
Kagsimiut	14	105	—
Karmat	2	28	—
Avatarmiut ...	5	33	—
Narsak	4	25	—
Niakornarsuk ...	2	19	—
Tugdlerunat ...	1	14	—
Ukevisokak ...	1	3	—
Igaliko	4	37	—
Kangermiutiat ...	7	74	—
Narsarak	4	23	—
Kussanga	1	9	—
Sisardlugtok ...	2	14	—
Igdlumiut	1	5	—
Kingatsiak	2	16	—
Niakornak	2	13	—
Keporkarmiut ...	1	17	—
JULIANEHAAB ...	38	208	15
N. Ikerasarsuk ...	7	65	—
Upernivik	2	20	—
Sardlok	9	100	—
Karusuk	1	8	—
Syd Proven	16	87	3
Davids Sund ...	3	17	—
Issua	2	33	—
Sagdlit	9	64	1
Sisarigsok	6	62	—
Ilivilek (gen. called *Nanortlalik*) ...	25	201	—
Tuapait	2	30	—
S. Ikerasarsak ...	1	14	—
Tunugdlek	1	16	—
Ikigait	1	4	1
Pamiagdluk ...	15	138	1
Igdlorsuatsiait ...	6	50	—
Kungmiut	2	73	—
Anordluitsok ...	2	21	—
Nouk	2	26	—
Augpolagtok ...	2	23	—
Frederiksdale (Moravian Mission) ...	22	163	9
Igdlukasik	6	48	—
Igdlerpoit (Moravian Mission) ...	9	73	3
Anartusok	5	44	—
Igpik	2	25	—
Kernertok	1	13	—
Kerrortout	1	6	—
Kanajormiut ...	4	36	—
Sermilik	3	19	—
Lichtenau (Moravian Mission) ...	21	199	6
Kekertarsuak ...	2	19	—
Karsuk	4	42	—
Arnat	2	13	—
Nunatsiak	8	94	—
Akuliarusek ...	3	24	—

2.—FREDERIKSHAAB.

	Native Houses.	Natives.	Europeans.
Auvgait	13	82	1
Kuanek	3	18	—
Storo	12	78	—
FREDERIKSHAAB	14	124	5
Kuan Island ...	12	73	—
Kekertak	3	27	—
Iluilarsak	3	21	—
Narsalik	6	50	1
Neria	3	38	—
Kangarsuk	6	56	—
Tissaluk	5	41	—
Arsut	9	76	1
Issua	2	29	—
Sennerut	5	42	—
Ivigtot, *Cryolite Mine*	—	14	38

3.—GODTHAAB.

GODTHAAB... ...	18	135	14
Narsak	7	76	—
Karajat	1	14	—
Sardlok	4	35	—
Kornok	6	60	1
Atangmik	5	51	—
Kangingnak ...	2	13	—
Fiskernæs	9	84	6
Lichtenfels (Moravian Mission) ...	13	139	4
Tornait	4	42	—
Kangarsuk	1	12	—
Ny Herrnhut (Moravian Mission) ...	13	103	7
Kangek	9	101	1
Kigutilik	1	15	—

4.—SUKKERTOPPEN.

SUKKERTOPPEN	25	354	5
Kangerdluarsuk ...	5	49	—
Naparsok	7	74	—
Kangamiut	8	196	1
Timerdleet	4	45	—
Agpamuit	4	41	—

5.—HOLSTENBORG.

HOLSTENBORG ...	12	165	5
Kærrortosuk ...	10	132	—
Umanarsuk... ...	2	31	—
Igdlorsuatsiak ...	2	24	—
Sarfanguak	3	37	—
Timerdleet	2	38	—
Sakardleet	3	66	—
Itivdlek	5	48	1
Sakak...	4	41	—

NORTH GREENLAND.

1.—EGEDESMINDE.

	Natives.	Europeans.
EGEDESMINDE ...	138	14
Maneetsok	42	—
Manermiut	29	—
Kangarsutsiak	81	—
Vester Island	38	—
Nivak	29	1
Akunak	28	—
Itivdlermiut	9	—
Hunde Island	83	1
Kangatsoak	49	1
Kekertarsuatsiak ...	70	—
Kepingassok	34	—
Eginiarfik...	12	5
Tunungasok	9	—
Ikerasarsuk	13	—
Tasiussarsuk	8	—
Aulatsivik	17	—
Niakornarsuk	46	—
Itivdlek	68	—
Aito	53	1
Ikerasak	61	—
Sagtut	68	—

NORTH GREENLAND—(*Continued*).

2.—GODHAVN.

	Natives.	Europeans.
GODHAVN	105	8
Erokigsok	10	1
Siorak	15	—
Kivigtut	22	—
Kron Prinds Island ...	31	—
Rœvesund	53	—

3.—CHRISTIANSHAAB.

CHRISTIANSHAAB ...	88	3
Klaushavn	126	1
Igdlomiut	15	—
Kariormiut	12	—
Narsarmiut	41	—
Erke	30	—
Akudleet	63	—
Ikamiut	102	—

4.—JAKOBSHAVN.

JAKOBSHAVN	214	12
Igdlomiut	46	—
Kingitok	37	—
Rode-bay	36	—
Pakitsok	24	1
Atane	23	1
Arsivik	8	—
Igdlotuarsuit	36	—

5.—RITENBENK.

RITENBENK	86	6
Kekertak	34	1
Nougak	40	—
Ukugsat	15	—
Sakak	84	1
Ujarasugsuk	68	1
Nougsuak	83	1
Nousak	27	—

NORTH GREENLAND—(*Continued*).

6.—UMANAK.

	Natives.	Europeans.
UMANAK	162	11
Sermiarsuk	77	—
Karsut	31	1
Ikerasak	103	2
Tulugak	15	—
Narsarsuk	11	—
Umanarsuk	21	—
Kariak	13	—
Tugdlitalik	12	—
Niakornat	82	3
Ukusigsat	55	2
Igdlorsuit	73	1
Kugsiminguak	21	—
Kungulertussok	19	—
Saitorsuak	67	1

7.—UPERNIVIK.

UPERNIVIK	79	9
Kingigtok	110	1
Augpadlartok	76	4
Savernek	37	—
Tasiussak	62	5
Karsuk	74	1
Kassersuak	56	1
Proven	109	3
S. Upernivik	74	1

The following is a general summary of the Census of Danish Greenland, taken on December 31st, 1874, for that year:—

Colony.	Agent or Governor.	NATIVES. Births, 1874.	Deaths, 1874.	Men.	Women.	Total.	Inhabited Places.	No. of Native Houses.	Europeans.
S. GREENLAND.									
Julianehaab ...	F. Hansen	87	68	1055	1277	2332	54	299	39
Frederikshaab	L. Mathiessen ...	36	36	371	434	805	15	96	46*
Godthaab ...	J. Mathiessen ...	33	24	396	540	936	16	101	33
Sukkertoppen	C. Lytzen	41	20	409	457	866	6	53	6
Holstenborg ...	F. Lassen	18	14	285	288	573	9	43	6
All S. Greenland	H. P. Stephensen *Superintendent.*	215	162	2516	2996	5512	100	592	130
N. GREENLAND.									
Egedesminde ...	Bolbroe	38	21	470	539	1009	22	—	23
Godhavn	Fencker	8	4	88	94	182	6	—	9
Christianshaab	Bolbroe	13	12	224	219	443	8	—	4
Jacobshavn ...	Feischer	10	10	218	203	421	8	—	14
Ritenbenk ...	L. Elborg	18	14	267	267	534	8	—	10
Umanak	E. Boye	36	23	371	426	797	15	—	21
Upernivik ...	Thygesen	30	17	353	356	709	9	—	25
All N. Greenland	Krarup Smith, *Superintendent.*	153	101	1991	2104	4095	76	—	106
All Greenland } Grand Total }	Dr. H. Rink, *Director.*	368	263	4507	5100	9607	176	—	236

* Of which 38 are at the Cryolite Mine.

There is an excess of births over deaths to the amount of 105; and the number of women exceeds that of men by 593.

For the last twenty years, from 1853 to 1874, the revenue of Greenland has been 157,428*l.*; out of which 46,402*l.* represents the tax on the cryolite mine; leaving 111,026*l.* derived from the trade itself. This gives an average of 5286*l.* a-year, after deducting all expenses of every kind, except the interest on capital supposed to have been sunk by the State, which is placed at 50,235*l.*, bearing interest at 4 per cent. Thus Greenland satisfactorily pays its way, and is a remunerative national undertaking. The field it supplies for employment and enterprise, and the great benefits conferred upon the Eskimo inhabitants, must also be placed on the credit side of the account.

The Table given on the following page is a statement of the quantity of the different products forming the Royal Trade, yielded by Greenland for the year commencing in April 1874, and ending in March 1875.

It will be seen that the great harvest of bearskins is obtained in the extreme south of Greenland, when the bears come on the ice drifted round Cape Farewell in the current from the east coast; that some are taken on the ice round Upernivik in the far north, but that bears are very scarce between Julianehaab and Upernivik. The codfish are mainly yielded by the Torske Bank off Sukkertoppen, and the narwhal horns are entirely from North Greenland.

The whole value of the articles exported from Greenland in 1874 was 44,936*l.* The largest yield is from the oil, which gave 31,897*l.* Next come the sealskins, yielding 5080*l.*, and the blue foxskins 4942*l.* The white foxskins only bring in 370*l.*; and the bearskins about the same. The next most valuable product, after the oil and skins, is the eider-down, worth 990*l.*, and the feathers, yielding 660*l.* The ivory is worth 170*l.*, and the dried codfish 270*l.*

From the gross revenue, besides the payment of officials and the cost of vessels, a proportion is set aside to be expended by the parish councils, called

Colonies.	Blubber.	Liver.	Skins.				Waterproof Clothing.		Feathers.	Eider Down.	Narwh'l Horns.	Dried Codfish.
	Casks.*	Casks.	Seals.	Foxes.	Bears.	Dogs.	Jackets.	Trousers.	Lbs.†	Lbs.	Lbs.	Lbs.
SOUTH GREENLAND.												
Julianehaab ...	2883	26	4943	1165	51	—	84	86	3184	—	—	—
Frederikshaab	584	36	853	212	—	—	76	112	791	14	—	—
Godthaab	416	35	557	580	2	—	21	57	4294	361	—	2400
Sukkertoppen.	627	203	409	441	—	—	2	4	1379	257	—	68,950
Holstenborg ...	590	54	247	280	—	—	25	13	618	506	—	
Total	5100	354	7009	2678	53		208	272	10,266	1138	—	71,350
NORTH GREENLAND.												
Egedesminde ..	763	57	2546	201	—	6	—	—	1234	791	99	—
Godhavn	178	5	241	32	—	5	—	—	143	—	11	—
Christianshaab	647	187	636	101	—	21	—	—	1044	64	—	—
Jacobshavn ...	496	713	514	29	—	13	—	—	309	—	18	—
Ritenbenk.....	977	196	2594	33	—	19	1	3	317	—	44	—
Umanak	1434	454	7842	12	2	12	—	—	26	9	191	—
Upernivik	1092	26	5004	12	7	79	—	—	57	323	94	—
Total	5587	1638	19,377	420	9	155	1	3	3130	1187	457	—
Grand Total...	10,687	1992	26,386	3098	62	155	209	275	13,396	2325	457	71,350

* One cask is about 30 gallons or 240 English pounds of oil. † The Danish pound is about 1·1 English pounds.

Missuisat or *Parssisut*, for the support of the aged and infirm, and of widows and orphans, as well as for necessary public works.

Communication between the Greenland settlements and Copenhagen is kept up, during the navigable season, by nine vessels, two or three of which generally make two trips out and home. They are as follows:—

VESSELS IN THE ROYAL GREENLAND TRADE.

Name of Vessel.	Name of Captain.	Rig.	Tonnage.
1. Tjalfe	Brockdorf	Brig.....	196
2. Nordlyset	Bonde	Barque....	266
3. Constance....	Jensen.....	Brig.....	214
4. Peru.....	Bang.....	Brig.....	294
5. Julianehaab..	Fredriksen ...	Barque....	236
6. Hvalfisken ...	Kettels	Brig.....	212
7. Lucinde.....	Moberg.....	Brig.....	161
8. Neptunus.....	Thuesen	Schooner .	113
9. Thorwaldsen	Ammondsen	Barque....	266

Besides the vessels which go to Ivigtot for cryolite, from Denmark, Scotland, and the United States.

THE VOYAGE OF THE 'CHALLENGER.'

XI.

THE voyage of the 'Challenger' is *un fait accompli*. The good ship has done her work and reached England in safety, and a right hearty welcome we accord her. The public excitement may not appear great in respect to the return of the Expedition, but it must be remarked that it will be in years to come, when all its results shall have been properly recorded, that the scientific voyage just concluded will be appreciated to its full extent. True, we have from time to time had a glimpse of a few of the secrets of the "vasty deep," just sufficient to give the scientific appetite a zest for more, but who can say what has yet to be revealed from the couple of hundred packages the ship was laden with on her voyage home? or in the much larger number that had previously reached England?—mines of wealth requiring much study, much research, and much laborious investigation before they can be disclosed to the world; still we may hope that time will not be lost, for in matters of science, like charity, *bis dat qui citò dat;* and above all, we hope that no niggardly consideration of expense will frustrate the results being given to the world in a style and completeness worthy of the importance and national character of the undertaking.

We left the 'Challenger' last on the 11th April, 1875, at Yokohama, where she was docked and refitted, and where the officers and crew enjoyed some relaxation from the long monotony of their voyage. On the 11th May, the expedition left Yedo Bay for Hiogo, and commenced sounding and dredging, and encountered bad weather, coming in for the full force of the north-east monsoon, with drenching rain and cross sea, so that Captain Thomson decided to put in to Oosima. The next day they left on their way to the Inland Sea, rounded the south point of Nipon, and passed through the Kii Channel and Isumi Strait into Osaca Gulf to Kobé, where the ship remained a week. A railway runs between Hiogo and Osaca, and this enabled the travellers to visit the latter place.

Osaca is one of the imperial cities of Japan, and is pleasantly situated on a river spanned by numerous bridges. The streets intersect each other at right angles, but are inconveniently narrow.

On leaving Kobé, dredging was carried on in the shallow depths of the Inland Sea, but without much success as regards animal life; and after again visiting Osaca Bay, the ship returned to Yokohama. On the return voyage a sounding of 2675 fathoms was obtained about 50 miles south of Oosima, thus filling a gap in the section of soundings between the Admiralty Islands and Japan.

After coaling and provisioning, Yokohama was left on the 16th of June, with the intention of running a line of soundings from Japan to the 155th meridian

of west longitude, between the 35th and 36th parallels of latitude; but this arrangement could not be adhered to on account of contrary winds, &c. The section commenced about 40 miles due east from Oosima, in latitude 34° 37′ N., and terminated in latitude 38° on the meridian stated. The first sounding was in 1875 fathoms, the next deepened to nearly 4000 fathoms, with the usual deep-water red clay bottom. At the first of these depths the trawl was let down, with much success, as, in addition to the usual shrimps, star-fishes, &c., pumice-stone, manganese, &c., a new description of hydroid was obtained.

By a strange coincidence another poor fellow found a grave in one of the deepest portions of the ocean. It may be remembered that we recorded the death, from accident, of a boy near St. Thomas, West Indies, whose body was committed to the deep at a spot where a depth of 3875 fathoms was obtained; and a man who died suddenly on the 17th, in like manner found a grave in 3950 fathoms. Between this and the end of the section the depth varied from 2000 to 3000 fathoms, the deepest water being at the end of the section, 3125 fathoms, in latitude 38° 9′ N., longtitude 156° 25′ W.

On the 21st the trawl was lowered in 2900 fathoms, but on heaving-in, the trawl-rope parted, and the weights and 2000 fathoms of rope lost; and as if the old adage of "misfortunes never coming singly" was to hold good, the following day the line fouled as it was running out, and 1400 fathoms of rope lost, and again on the 26th the rope parted with 3700 fathoms out. These losses were much regretted, because irreparable. Another loss was sustained on the 12th, by accidental breakage, in a thermometer that had for nine months been used for registering the temperature at the bottom, and had withstood the enormous pressure, at a depth of 4500 fathoms, equal to nearly 5½ tons on the square inch.

From the last-mentioned position a course was shaped almost due south, for Honolulu, the depth continuing with little variation on either side of 2800 fathoms, until within a short distance of the islands. Honolulu was reached on the 27th July. A few days after, the king paid the ship a visit, and was received right royally—the yards being manned when he left the shore, and the band playing the Hawaiian National Anthem as he passed over the side. He took particular interest in the novelties that were introduced to his notice, particularly the sounding apparatus and mode of detaching; his portrait was taken on the quarter-deck, with that of his suite and the officers of the ship.

During the fortnight the 'Challenger' remained at the Sandwich Islands, many excursions were made inland, and visits paid to the "Gap," a ravine about 6 miles from Honolulu. The natives say that it was here the first Kamehamena gained his final victory, by driving his opponents over the precipice.

On the morning of the 11th August, the 'Challenger' steamed out of Honolulu Harbour, and immediately proceeded to "swing ship," to ascertain the deviation of the compass and the dip and intensity of the magnetic needle. The course was then shaped to Owhyhee or Hawaii, as it is now termed. Between these places a sounding was obtained in 2050 fathoms. On the night of the 13th the volcano of Mauna Loa was seen in eruption, and the next day the ship reached the anchorage of Hilo (Byron Bay), on the north-east side of Hawaii. The town of Hilo is prettily situated on the shore of the bay, but, unlike Honolulu, it is straggling, with here and there a church or chapel and a few tall chimneys of sugar manufactories.

A party was soon arranged for the purpose of visiting the volcano Kilanea, a breach in the flank of Mauna Loa, and 3800 feet above the sea. It is about 30 miles from Hilo. The scenery was most beautiful, the route for the first 3 or 4 miles lying through a dense forest of luxuriant tropical vegetation. Beyond the forest the plain was studded with stunted shrubs, and guavas were found in great quantities. About 15 miles from Hilo is a small native hut, called "The Halfway House"; here some modest refreshments, such as tea, coffee, and biscuits were obtained, and then the excursionists proceeded towards the mountain, and reached the Victoria Hotel (an oasis in the desert due to American enterprise), which is situated about 4 miles from the crater. The volcano is shaped like a large amphitheatre, descending in terraces, with jets of lava issuing in different directions. The bed of the inner terrace rises and falls according to the state of activity of the volcano, Kilanea being generally quiet when Mauna Loa is in eruption, and *vice versâ*. A series of good photographic negatives were obtained under rather trying circumstances, both in regard to conveyance of the apparatus and the manipulation of the plates. After remaining the night at the Victoria Hotel, the party returned to Hilo.

On the afternoon of the 19th of August, the expedition left Hawaii for the Society Islands, and the regular work of sounding, dredging, and obtaining sea temperatures recommenced. The depths were not very regular, varying between 2000 and 3000 fathoms, generally with red or chocolate coloured mud bottom, until near the Society Islands, when a cast of 1525 fathoms was obtained. On the 18th of September the 'Challenger' anchored in Papeité Harbour, Tahiti. On the voyage from Hawaii they had the misfortune to lose, by death, one of the scientific staff, Dr. Rudolf von Willemoes-Suhm, a native of Schleswig-Holstein, and who, as a talented naturalist and linguist, was a serious loss to the expedition.

When near the equator, in 0° 33′ S., a very successful haul of the trawl was made in 2425 fathoms, bringing up some fish and sponges; and again on the 16th of September, in 13° 28′ S., the trawl came up with a heavy load of manganese modules, several shark's teeth coated with manganese, and pieces of whale-ear bone, from a depth of 2350 fathoms. Tahiti is a far more fertile and picturesque island than Hawaii, the highest peak reaching to only 7000 feet; cocoa-nut trees, bread fruit, and the guava shrub literally clothe the lowland sides of the island, and, in addition to these, bananas, oranges, pineapples, and mangroves are abundant: the oranges are described as being particularly fine, large quantities being annually exported. Tahiti may now be considered a French colony; and although much of the original freshness of the island is wanting, still there is much that is strikingly novel to the European, and the officers and men of the 'Challenger' greatly enjoyed their stay. Excursions were made to different parts of the island, and one of them naturally took the direction of Point Venus. The road runs for a distance along the shore under the shade of cocoa palms, bread-fruit trees, &c.,

with here and there a native village. On the point a lighthouse now stands, a fitting memorial of the visit of the great navigator; near this a tamarind tree is pointed out as having been planted by Captain Cook himself.

Having coaled from the depôt of the French Government, on the 3rd of October the 'Challenger' again put to sea, proceeding in a southerly direction; and the next morning sounded in 2000 fathoms, and from thence carrying the line of soundings to 40° south latitude, the depth varying to the extent of about 500 fathoms, the deepest sounding being at the end of the southerly course, where 2600 fathoms were obtained. Trawling and serial temperatures were taken as usual, the former with indifferent success, manganese modules, sponges, and shrimps being the general result. From the last-named sounding, the ship's course was altered to the eastward, and the depth somewhat decreased. On the 29th, in latitude 38° 43′ S., longitude 112° 30′ W., the depth was only 1600 fathoms, with a bottom of gray ooze.

Early in the morning of the 13th of November Juan Fernandez was sighted, and the same evening the ship anchored in 30 fathoms in Cumberland Bay. Juan Fernandez is well known as being the enforced residence for nearly 4½ years of Alexander Selkirk, the prototype of Robinson Crusoe. It is not so well known that Selkirk afterwards became a lieutenant in the Royal Navy and died on board H.M.S. 'Weymouth' in 1723.

The island is about 12 miles long and 2 to 3 broad, and rises to about 3000 feet above the level of the sea. It is luxuriantly wooded nearly to the summit, with here and there grassy plains. The myrtle flourishes in all parts of the island, and, in addition, the wild-peach tree is plentiful. Goats are in abundance, having been introduced by the discoverer whose name the island bears. Two centuries ago, as is well known, the island was the resort of buccaneers, who found food and refreshment to hand, much to the detriment and annoyance of Spaniards on the mainland. At present about fifty people find sustenance on the island, and from these supplies were obtained. A stay of two days enabled the naturalists to search the island for its scientific treasures, and numerous specimens of plants and birds were obtained. On the evening of the 15th the 'Challenger' left the island, and anchored at Valparaiso on the 19th, having been forty-seven days on the voyage from Tahiti.

After a pleasant sojourn of three weeks at Valparaiso, the 'Challenger' commenced her homeward voyage, steering out towards Juan Fernandez, in order to complete the section of soundings from Tahiti. When in sight of the island a sounding was obtained in 1375 fathoms, and a rich haul with the trawl secured. Christmas Day was passed at sea, and on the last day of the year they passed into the Gulf of Peñas and anchored in Port Otway, but proceeded the next morning, making their way to the southward, through Messier Channel, occasionally stopping and landing to examine the country and procure specimens.

On the 4th January they had reached Port Grappler. Here they found an abandoned German steamer in charge of some Englishmen. This vessel, on her voyage from Valparaiso to Europe, had struck on the Vaudreuil Rocks, and believing she had become a perfect wreck, the captain had accepted the offer of the captain of a French war-steamer, abandoned his ship with the crew, and returned to Valparaiso. A Chilian steamer passing shortly after, took the abandoned vessel in tow, and got her safe into Port Grappler. The weather was anything but favourable for scientific operations of any kind whilst passing through the narrows and channels, still the sounding and trawling went on, and some valuable additions were made to the naturalist's collection. On the 11th the ship was off Tamar Island, and the same afternoon she anchored in Port Churruca, on the opposite side of the Strait. Proceeding the next day, they reached Port Famine, and here obtained two valuable hauls with the trawl, by laying it out in the steam-cutter and hauling it in on board the ship. Leaving Port Famine in the morning they went to the Chilian settlement of Sandy Point.

Sandy Point, although an important post, from its position in Magellan Strait, is not in a very flourishing state, principally from the want of energy and capital; coal is found in the vicinity, which, when burnt with other coal, is found to be very serviceable by the steam-vessels that are continually passing through the Straits; gold is also found in small quantities. The town, if it may be so called, consists of a single street of wooden one-storied houses, very much out of condition. The population consists of about 200, who are watched over by a governor and a company of Chilian soldiers. Supplies were readily procured at the settlement, and quantities of mushrooms from the neighbouring hills.

On the 18th of January, after a stay of four days, the 'Challenger' proceeded to Elizabeth Island. Good shooting was found, and an abundance of duck and teal rewarded the sportsmen. On the 20th, at daylight, the anchor was again weighed, and the ship steered out of the Straits of Magellan the same afternoon, and reached Stanley Harbour, Falkland Islands, on the 23rd.

The little town of Stanley had a cheerful appearance, and the weather being fine, it brightened up the otherwise desolate region around it. The one road, about two miles in length, is called Ross Road, after the celebrated Arctic and Antarctic navigator, at whose recommendation the settlement was moved from Port Louis. Along this road is the town, consisting of a government-house, the church, and a few houses. At one end is the cemetery, but beyond this all was bare, stony, and sterile. As the position of Sir James Ross's Magnetic Observatory in 1842 was at Port Louis, in Berkeley Sound, the 'Challenger' proceeded to that place in order to obtain comparative observations, the result being that whereas the dip of the needle in 1842 was 48° 26′, in 1876 it was 52°.

Returning to Stanley, the expedition finally left the Falkland Islands on the 6th of February, and proceeded to Monte Video, obtaining the usual observations on the way, arriving on the 15th. After a stay of ten days they again proceeded to sea, taking a line of soundings towards Tristan da Cunha, the deepest water attained being 2900 fathoms, with a temperature of 31½°. On the 13th of March a sounding was obtained in 2025 fathoms, in a position 15 miles from a sounding in 1900 fathoms obtained on the 14th of October, 1873. The bottom temperatures were found to agree, but the surface water was 10 degrees colder, due, doubtless, to the different seasons of the year.

A position was now steered for to get on a line between Tristan da Cunha and Ascension. At first the depths on that line varied considerably, the deepest sounding being 1990 fathoms, but after this they were very regular at a little under 1500 fathoms, leading to an inference that Tristan da Cunha and Ascension are connected by a submarine plateau not exceeding 2000 fathoms in depth. On nearing Ascension, at a distance of 10 miles from it, the water shoaled to 625 fathoms; the ship then anchored in Clarence Bay. During the week's stay, visits were paid to the Green Mountain, and the island ransacked for botanical specimens, whilst the ship completed provisions and coals from the government stores.

At daybreak on the 3rd of April the expedition left Ascension, having previous to leaving shipped three large turtles and several young ones. From Ascension the soundings were continued to the equator, the depths being 2010, 2350, and 2250 fathoms. Serial temperatures were observed at each of the stations at every 10 fathoms to 200 fathoms. On the 9th of April the ship reached another position on which a sounding had been taken in 1873, and thus the meridional section of soundings was connected. The temperature of the bottom was found to be the same and up to 600 fathoms; above that they were slightly higher than those obtained three years before, the surface water being 6 degrees higher. The serial temperature observations were continued to the 14th. On the 6th there was a difference of 27 degrees between the temperatures at the surface and at 90 fathoms, and between 20 and 30 fathoms the difference was as great as 15 degrees. Subsequent observations showed a rapid decrease of temperature to about 70 fathoms. An attempt was made to procure some of the cold water from the depth of 40 fathoms by means of the fire-engine and hose, but after considerable labour with no result, the hose was hauled in.

On they 17th they reached Porto Praya, Cape Verde Islands, and then on to St. Vincent. From St. Vincent the ship proceeded to Vigo, and from thence to England, arriving at Spithead on the 24th of May.

It may be interesting to record that during this lengthened voyage the ship sailed and steamed over upwards of 68,000 miles, that nearly 400 deep soundings were taken, of which two were over 4000 fathoms, nine between 3000 and 4000 fathoms, 168 between 2000 and 3000, 124 between 1000 and 2000, the remainder being under 1000 fathoms. Serial temperatures were obtained at 250 stations, and dredging or trawling effected at nearly as many.

J. E. DAVIS.

THE ANDAMAN ISLANDS.

THE Andaman group consists of four large islands and several smaller ones. They lie between 14° 14′ and 10° 34′ N. latitude, and from 92° 16′ to 93° 20′ E. longitude, thus forming the link between the continent, where the Irawady forms its delta, and the Nicobar Islands.*

* See an article on the "Nicobar Islands," *Geographical Magazine* for February 1875, p. 44.

It will be seen, from the following table, that the climate is tropical, very moist, and without any great changes in temperature. Although the heat is always great, it is not so much felt as one might expect, because there is nearly always a sea-breeze from one side or the other.

Table showing the mean Temperature of the Air, highest and lowest readings of the Thermometer, and Rainfall for the year 1874.

1874.	Mean Temperature of Air.	Thermometer.		Rainfall.
		Highest.	Lowest.	
	°	°	°	Inches.
January . .	82·9	86·6	77·6	0·2
February. .	84·7	90·6	76·6	nil.
March . .	86·6	91·6	81·6	0·2
April . .	88·1	92·6	82·6	0·32
May . . .	84·8	91·6	75·6	26·53
June . . .	84·4	90·6	77·6	13·05
July . . .	83·4	87·6	77·6	14·98
August . .	82·5	86·6	77·6	16·87
September .	83·8	86·6	77·6	13·11
October . .	82·4	86·6	76·6	9·72
November .	84·0	87·6	77 6	8·58
December .	83·8	86·6	77·6	1·79
		Hottest day.	Lowest reading	19 April, fall.
Mean . .	84·45	92·6	75·6	10·18

The land is undulating, and rises to the height of 2500 feet. Being a diluvial formation, with slate, sandstone, and rollstones, conglomerated or otherwise, the soil has no great stability, and is therefore not adapted for roads and buildings.

The islands, where they have not been touched by the hand of man, are densely overgrown with jungle, which has a dark appearance. It consists of huge straight trees, which are very often more than 100 feet to the first branch, and whose crowns close together and produce shade and darkness. This dense cover excludes the rays of the sun, producing a very even temperature; the soil, however, retaining its moisture, there being just light enough for the purposes of vegetation. In this hothouse of nature the young trees grow up, and between them a most luxurious undergrowth of prickly ratans, and other creepers.

The inhabitants of these islands, before the Government of India established a colony, consisted of some few degraded negrito tribes, scattered along the coasts and freshwater creeks. In the jungles, beyond a few berries and the wild hog, there was no food to be found; nature had, as far as the land was concerned, given them a poor country. They had no materials wherewith to ameliorate their condition. The stones are very soft, except volcanic rock, and a little white flint, which is not found *in situ*. From the flint they manufactured knives, razors, and arrow-heads. A few leaves put together and raised with a stick formed their temporary shelter against the rain. As little food could be found in the jungles, they hugged the coasts, and there found a great variety to choose from. Turtles are found on the coast at certain seasons, and fall an easy prey; on the reefs are large oyster banks, and among the corals swim gaily coloured and palatable fish, which at low water can be easily caught with the hand. On the sand, shell-fish are also found in abundance, and wherever they turned plenty met their eyes. For travelling and fishing they constructed canoes from the trunks of

trees, which were hollowed out by burning, and worked with flint hatchets. A party of perhaps forty or fifty would club together, and a place of rendezvous would be selected sheltered from the sea, and within easy access to it, generally near a little running stream, where they would make their shelter-mats. In those times, whilst the men were out hunting the pig, the women would probably search the coral reef for shell and other small fish, and the boys would go out in boats seeking for larger fish and turtles. Towards evening they would all meet, and then the produce would be divided. To harden the skin against the attacks of the mosquitoes, sandflies, &c., as also for jungle travelling, they cut a number of small wounds over the body. Sitting round their fires in the evening they would make bows from mangrove roots, and from badly burnt clay would fashion curiously patterned pots with their finger-nails and sticks. Owing to the accumulation of rubbish, their place of meeting soon became disagreeable; for although they had good appetites and wasted nothing, and the little busy hermit-crabs, their natural scavengers, daily tried to clear away all animal food, still enough remained to make the place offensive. Then also the pigs became wary and would not be caught, or the hot season dried up their little stream, or the tides did not suit; thus they were constantly seeking fresh hunting-grounds.

Wherever their camps were, large mounds may still be seen, where the accumulations of generations, in the shape of shells, bones of animals, pieces of pottery, and other remains are found. Curious it is that similar heaps, or mounds, are still met with in Denmark, Slesvig, Scotland, and other places in Europe. While no one knows who made them in Europe, we here find a people in this primitive state, and at some distance from the settlement these heaps are still in course of construction.

The Andamanese of Port Blair of the present day are very different from their ancestors. They possess dogs; iron and glass chips have taken the place of flint chips. Government grants them a monthly allowance; and some of their own produce is sold in the public market. They now have as much grain as they care to eat; they have taken to tobacco; and many of them are expert in catching runaway convicts.

In 1789 the Hon. East India Company sent Lieut. Blair to found a settlement at the Andamans. He selected a very roomy harbour on S. Andaman, and called it Port Cornwallis. In 1792 his settlement was moved to N. Andaman, and in 1798 the attempt was finally abandoned. At the close of the mutiny, in 1858, the same harbour in which Lieut. Blair established himself in 1792 was re-occupied, and called, in honour of him, Port Blair.

The harbour is a large bay cutting into S. Andaman, and is very deep. At the entrance lies an island; in the middle of the harbour, where it makes a turn, is another, and at the further end a third. On the highest point of the first island, called Ross, which is the head-quarter's station, lives the Chief Commissioner and Superintendent. At the north end there is a large stone barrack; in the middle, along a ridge and on the slopes, live several officials. On the south side are also barracks, and beyond these, cut off from the remainder of the island by a railed earthwork, are convict barracks, some of which are occupied by female convicts, and others form hospitals. On the beach is the commissariat yard, where the stores for the whole settlement are kept. Crossing from Ross to the southern side of the harbour we come to Aberdeen. The station is on a hill. On the one side is a convict village, wherein live a number of ticket-of-leave convicts; on the other side, and on the higher ridge, are seven convict barracks and an overseer's house. Below the barracks, on the beach, are some brick and lime-kilns. Going inland we pass the commissariat cattle-farm, where the bulk of the cattle and sheep are kept for slaughter. Then we come to a cantonment, built for the head-quarters of a native regiment, with four barracks, and the quarters of the Deputy Superintendent, who is the chief magistrate, as well as a station officer, having under his control all the stations south of the harbour. To the southward of Aberdeen is a smaller station called Southpoint, with four barracks, and further down the coast a little station, called Corbyne's Cove, after the first chaplain of that place. I may here mention *en passant* that it was he who had the honour of having pacified the wild tribes around the settlement.

On the surrounding hills of the southern stations lie Haddo and Navy Bay, the one being a series of hospitals and extensive fruit gardens, the other a central station for convicts employed on a large clearing in an adjoining valley. These stations are in a very advanced state; all the jungles in their vicinity having disappeared, and the surrounding hills, in the rainy season, are covered with fine grass, and cattle may be seen grazing in every direction. The mangrove swamps have on all sides been cleared, bunded, and converted into smiling paddy-fields. Unlike the southern side of the harbour, the northern stations are not yet cleared of jungle. Owing to there being no flat land near, these stations have never had a very strong force of labouring convicts. On this side lies Mount Harriet, 1150 feet above the sea, which is considered a sanitarium. Here also is a coffee-plantation; and other experimental cultivation, such as nutmegs, pepper, and ipecacuanha, is carried on. From this hill a most charming view meets the eye. In clear weather the sea is seen on both sides, and numerous little islands. Below, in the midst of a large cocoa-nut plantation, lies the hut where the salt for the whole plantation is made from sea-water. On the other side is a fine clearing, where a portion of alluvial land has been turned into a paddy-swamp. The whole valley abounds in mangrove, and numerous freshwater creeks run in every direction, forming natural waterways. At the foot of Mount Harriet lies Hopetown, the place where, three years ago, Lord Mayo was assassinated, a misfortune which brought these otherwise little-known islands prominently into notice.

Opposite to Hopetown is the second island, Chatham. On it are artificers' workshops, a saw-mill, coalshed, three convict barracks, and dwellings of the officials.

The third island, Viper, consists of one large hill. Here is the jail, to which the worst criminals are sent. At Viper also the invalids are kept, and a house where some Andamanese lads are detained in a sort of semi-imprisonment. The jail is a fine stone building, and gives the otherwise dreary place quite a

cheerful appearance. To the west of this island are some straggling clearings, mostly occupied by convict cultivators. The number of convicts at all these stations for the official year 1874-5 was 8282.

The murderers and other criminals who have escaped being hanged in their own countries are sent to Port Blair, as it is for life-convicts *par excellence* that this settlement exists. On arrival a convict has heavy irons on; these are at once taken off and lighter ones substituted. He is then put in a mess-gang, which, to a Hindu, is a great punishment. After six months one leg-iron is removed, and the other at the end of another six months. If the man has behaved well during the first year of his transportation, he *may* be allowed to cook his own food. Thus he remains until he has completed four years, when he is promoted to receive, besides his rations, 1*s.* 6*d.* per mensem. At the end of seven years, the convict, having completed his term of penal servitude, has his pay raised to 2*s.* per mensem, and he *may* then be promoted to a petty officership or servant, or put into a place of trust and betters himself. After ten years he becomes a first-class convict, and he *may* then get a license, whereby he is allowed to build a house and take up some trade—as a rule, the one he followed in his own country—and he *may* be allowed to marry. Finally, after twenty years, he *may* be pardoned and released.

As I have here sketched the life of a convict, the reader may observe that at every stage of servitude there is a chance for him to better himself. The slightest punishment is recorded, and turns up again at every step. The convicts control themselves: to every hundred men seven petty officers are allotted, who are responsible for them by day and night. To some people the punishment awarded might appear too light for the class of men we have here. To those I would say, that the bringing away of Hindus from their native country is in itself a dreadful punishment. The ties of family and old associations are broken, caste is lost, and many a hardship have they to endure. But one thing I am glad to say, and that is, that as a rule, I think, transportation improves them. Idleness is very often at the root of the evil that brought them into trouble, and that is remedied here. They have regular hours, are disciplined, and find out very soon that a plodding, steady man can get on well. Many a thief and highway robber who kept a whole district in India on the *qui vive*, is now a peaceable cultivator, with wife and children, and has lost all the qualities of a wild beast which formerly made him prey on his neighbours. On the other hand there are also some, but very few, who cannot settle, who are always in trouble, and who are a constant source of annoyance. But, taken on the whole, I think the majority improve, and they can enjoy a certain amount of liberty without danger to society. Instead of being immured within the walls of a jail for life, convicts are here constantly in the open air. They are not confined or chained unless they misbehave. It is more a moral power that works than any strict treatment. One of the reasons why they behave so well is the variety of nationalities and religions that are thrown together. No serious plot could well be executed, for a Brahmin would tell on a low-caste man, and a Mussulman would not trust a Hindu. We have fair-faced Persians and Cashmiris, true Arabs, little sturdy hillmen, dirty Punjabis, dark-faced Tamils, slender Bengalis, Malays, Chinese, Burmese, Telingis, Cingalese, and many other nationalities mixed together. The prince and the beggar, the high-born Brahmin considering himself the incarnation of the deity and the outcast, all march together in the same file—the one is number 19,007, the other 19,008.

The settlements do not yet pay their own expenses, but they produce something. In a new country like this, it takes some time to make a start. At every forward step land has to be cleared, buildings erected, roads made, all of which necessitate great labour; and convicts cannot be moved about like free men. Nevertheless a great deal of land has been thoroughly cleared and given over to ticket-of-leave men to cultivate. A great deal of experimental cultivation has been carried on to try what the capabilities of the place are, and in many cases with much success. Fruit trees grow well and thrive, the pineapples of Port Blair being well known in India. Coffee grows well, and is agreeably flavoured; cotton will not thrive here, it deteriorates very quickly; and tobacco, although it grows well enough, does not dry properly. Luxuriant grass covers all the cleared hills, and if protected in early growth remains good for several years. The product which I think will give the best return is the cocoa-nut palm. It bears in six years, and needs no nursing.

I must, however, close this paper. There are many things I should liked to have touched upon, but I fear I have already exceeded the space usually allotted to papers such as this. Suffice it therefore to say, that I trust I have succeeded in creating a little interest for our great Indian penal settlement.

FR. AD. DE RÖEPSTORFF.

A JOURNEY INTO THE ARABIAN DESERT OF EGYPT,

BY DR. SCHWEINFURTH AND DR. GÜSSFELDT.

DR. SCHWEINFURTH undertook this journey with a view to the botanical exploration of the Arabian Desert to the east of the valley of the Nile; Dr. Güssfeldt in order to determine the geographical position of a number of points between the Nile and the Red Sea, and to make magnetical and hypsometrical observations. Jointly they proposed to improve the map of a district which is easily accessible, but has hitherto been neglected by travellers.

On the 19th of March our travellers left the bank of the Nile, at Bayād-en-Nasara, opposite Benisuef, and proceeding for several days in a westerly direction across a number of wadies, some of them affording capital pasture to camels, they reached Wady Arabah, which is 6 leagues across, and, like the oases of the Libyan Desert, is surrounded by steep precipices—the old coasts of an eocene ocean—which lead up to extensive plateaux. Wady Arabah extends from W.S.W. to E.N.E. It is bounded on the south by the Galāla or Khelal Mountains, rising to a height of from 3300 to 3600 feet. Six parallel valleys lead into these mountains from the Wady Arabah, in a south-westerly direction. Our travellers penetrated into several of these, and obtained thus a thorough knowledge of the nature of these mountains, their

geological structure and vegetation. Several days were spent upon the summit of the Galāla, which is accessible to camels only through Wady Ashar. The botanist here meets with a flora quite new to Egypt. At an elevation of 3300 feet above the sea the plateau is covered with so dense a carpet of low herbs, that it would be impossible to touch the bare soil with the hand without coming into contact with some plant. Many species of plants not hitherto met with in Egypt, and whose habitat was believed hitherto to be confined to the mountains of Persia or Syria were found here, together with others characteristic of the sea-shore near Alexandria. The parasitic *Cynomorium* abounds on these heights, and two edible roots, *Scorzonera undulata* and *Malabarla*, both of Mediterranean origin, are met with everywhere. The character of the flora altogether differs from that of the wadies below, and only a few species ascend to the heights. In the upper part of the ravines radiating from Galāla natural basins are met with containing an abundant supply of potable water. One of the most picturesque of these ravines is the Wady Natfe. It takes its rise in a vast stalactite cavern, through which flows a rivulet over regular stone steps, occasionally widening into small lakes. Stalactites, more than 20 feet in length and densely covered with mosses, depend from the dome-shaped roof, the dripping walls are adorned with magnificent ferns (*Asplenium Capillus Veneris*), and there are large shrubs of the fig-tree of Mount Sinai (*Ficus palmata*). All this imparts to the cavern of the Wady Natfe an appearance which could hardly have been looked for in a desert reputed so arid and barren as is that to the east of Egypt. In the lower portions of the wadies the inclosing hills assume the most varied and grotesque shapes. Every tourist would be delighted with a visit to these valleys, even if he should take no interest in botany or geology. The two Monasteries of St. Antonios (Der Mar Antonios) and St. Paul (Der Mar Bollos), the one on the northern, the other on the southern slope of the Galāla, alone repay a visit, which amply compensates for several days' travel. For more than fifteen centuries they have preserved their original features. The Monastery of St. Antonios was enlarged seventeen years ago and surrounded by a new wall. It is a magnificent building, resembling a fortress capable of affording accommodation to several regiments. Our travellers were received at the two monasteries in the most hospitable manner, and speak in high terms of the attentions shown them. Strange to say, these most interesting localities, renowned in former times as places of pilgrimage, have scarcely ever been visited recently. The last traveller who paid them a visit was Mr. Greville C. Chester, a collector of antiquities from London. The vicinity of the Monastery of St. Paul will prove an El Dorado to every collector of fossils, which abound in the upper chalk cropping out here below the eocene formation, which constitutes the mass of the mountains. The chief ornaments of the collection made included numerous echinitæ and five species of ammonites, some of these latter a foot in diameter. A few leagues to the south of St. Paul crystalline rocks first appear on the surface, consisting of hornblende and granitic rocks.* A bed of sandstone, 200 feet thick, conformably overlies these crystalline rocks, and is in turn covered by the fossiliferous stratum of chalk already referred to. The sandstone contains beds of coloured, sometimes blackish, marl, which induced one of the earlier visitors to this district, Figari Bey, to search for coal. Figari made his explorations in 1844-47, by order of Said Pasha, and having a large number of convicts at his command, he made them drive numerous adits into the rocks, which are still to be seen. Figari was *pharmacien-en-chef*, and merely an amateur geologist, and it need not therefore cause surprise if he made gross errors in the determination of the formations, and produced a geological map full of illusory results. The crystalline rocks to the south-east of Galāla, like those of Sinai, as well as of a large portion of Palestine and Syria, are covered by the cretaceous formation. The sandstone which crops out near the Monastery of St. Paul is a member of the most ancient sedimentary formation of Egypt. It contains no fossils, and is probably of the same age as the sandstones of Sinai and Palestine, of the great Oasis, and of the Nubian Desert. Its age has not hitherto been determined accurately, owing to the absence of fossils, but it is certainly a member of the cretaceous system.

Our travellers passed round the Galāla mountain in a south-westerly direction, and at its most south-westerly spur they reached the large natural cistern of Megeta, already visited by Delile, the botanist of the French Expedition. This magnificent basin is favoured exceedingly by the nature of the surrounding rocks—gravel and limestone—and retains an abundant supply of water even after many years' drought. Large armies might draw their supplies from it without exhausting it.

On the return journey, our travellers proceeded in a W.N.W. direction through the Wady Moathil, already mentioned by Wilkinson, but never before visited by a European traveller. On the 22nd of April, after an absence of thirty-five days, they were again on the banks of the Nile, which they reached near the village Hibeh, opposite Feshn.

Dr. Güssfeldt had with him a supply of first-rate instruments. He determined the geographical position of about twenty places. A mercurial barometer was used to check the aneroid observations, which were made with an instrument supplied by Beck, of London. The variation of the compass and magnetic intensity were likewise determined.

The tour thus sketched can be recommended to every admirer of the beauties of nature. The Bedwins inhabiting that part of the desert are Maāse Arabs, who contrast most favourably from their talkative and begging brethren on the other side of the Nile. They number about 3000 souls, move from pasture ground to pasture ground between the Nile and the Red Sea, in the full enjoyment of their liberty, and of comparative wealth. Five francs at most are paid daily for a camel when on the march, and half that amount when resting. The camels are strong, well trained, and accustomed to desert travel. Want of water need not be feared, as no winter passes in the desert between 28° and 29° N. latitude, without rain. Benisuef is the most convenient point to start from. At Buhsh, a village a league and a half to the north of that town, there are two monasteries, branch establishments of those in the eastern desert, from which these draw their supplies. The Bishop of Buhsh is head of the Monastery of St. Antonios.

* Granite, diorite, porphyry, porphyrite, serpentine, syenite, hornblende-schist.

The latitudes and longitudes of the following places, amongst others, were determined:—

Benisuef	29° 3′ 54″ N.	31° 6′ 39″ E.
Feshn	28° 49′ 22″	30° 55′ 25″
Wady Sanur	29° 3′ 17″	31° 37′ 6″
Mouth of Wady Natfe ...	28° 52′ 50″	32° 15′ 51″
Der Mar Antonios	28° 55′ 30″	32° 23′ 26″
Der Bollos	28° 50′ 50″	32° 33′ 59″
Cavern in Wady Azkhar	28° 52′ 49″	32° 20′ 24″
Water-hole in the Upper Wady Dakhl	28° 45′ 4″	32° 24′ 14″
Cistern Megata	28° 27′ 20″	32° 12′ 22″

The difference in longitude between Signor A. Pirona's observatory at Alexandria and Benisuef was determined twice, and amounts to 4′ 52″·7 (error less than 1″).

The magnetic observations led to the following results:—

			Variation.	Dip.
March 12, 1876,		Benisuef	5° 42′·4 W.	39°·2 N.
April 1,	,,	Der Mar Antonios	5° 16′·8	39°·1
,, 8,	,,	Der Mar Bollos	5° 17′·6	38°·7
,, 26,	,,	Benisuef	5° 38′·8	39°·3

VERRAZZANO.

[WITH the sanction of the editor of the *Pall Mall Gazette*, and at the request of Mr. Major, the author of the article, we reprint the following from the issue of that journal of the 26th of May last, Mr. Major's object being that his name should appear in connection with a paper in which he has endeavoured to refute the arguments of an American writer on a subject so important as the first post-Columbian voyage along the shores of the United States.]

"For more than three hundred years it had been accepted as a truth by all geographers and historians concerned in the subject that the first discovery of the greater portion of the Atlantic coast of North America, embracing all of the United States north of Cape Roman in South Carolina, and of the northern British provinces as far, at least, as Cape Breton, was made by a Florentine named Giovanni da Verrazzano, in the service of Francis I., King of France, in the year 1524. The details of the voyage were embodied in a letter addressed by him to the King from Dieppe on the 8th of July, 1524, on his return to that port, of which he was an *habitué*, and from which he had originally started. It was not till the year 1556 that this narrative was given to the world in print, in the third volume of Ramusio's famous collection of voyages, published in Venice; and until 1841 this printed document remained the only source of what the world at large knew on the subject. In a prefatory discourse Ramusio says, 'It was the only letter of Verrazzano that he had been able to have, because the others had got astray in the troubles of the unfortunate city of Florence.' About a century ago, however, there was discovered in Florence a codex containing a copy of a letter purporting to have been written by one Fernando Carli from Lyons to his father in Florence on the 4th of August, 1524, giving an account of the arrival of Verrazzano at Dieppe, and inclosing a copy of his letter to the King, together with a 'cosmographical narration' by Verrazzano, not published by Ramusio, but forming in fact the concluding portion of the letter to Francis I. This codex, now in the Magliabecchian Library in Florence, consists of miscellaneous pieces, chiefly relating to contemporary history, and all in the same handwriting, which is acknowledged to be of the middle of the sixteenth century. While, therefore, there is nothing to lead us to suppose that the contents of this manuscript volume are not faithful transcripts of genuine documents, it is quite clear that they do not profess to be original. In 1841 Mr. Greene, the American consul at Rome, printed in the Collections of the New York Historical Society this Carli copy of the Verrazzano letter, with a translation into English by the late Dr. Cogswell. A comparison of it with Ramusio's version shows considerable differences in diction, and some in substance, but none in its general drift and purpose. Meanwhile, no copy of it in French, nor any memorial of its existence in that language, has yet been found. In view of these facts, and some others which will be adduced as occasion requires, an octavo volume was last year issued in New York by Mr. Henry C. Murphy, entitled, *The Voyage of Verrazzano: a Chapter in the Early History of Maritime Discovery in America*, in which it is distinctly asserted that 'the whole story is a fabrication; the Carli letter is untrue; it did not inclose any letter of Verrazzano of the character pretended; and, as it is the only authority for the existence of any such letter, *that* falls with it.' Now this is a charge which requires investigation; and the object of the present paper will be to show that this charge is based on nothing better than a series of arbitrary assumptions, not only unsupported by facts, but in direct contravention of facts admitted by Mr. Murphy himself.

"Mr. Murphy starts with assuming, but without the slightest evidence, that Ramusio's is a version of the Carli copy, modified according to his own fancy, and then proceeds to make the following assertion. Carli's letter, he says, announced 'that news of the arrival of Verrazzano at Dieppe had reached Lyons, and that the navigator himself was expected soon to be in that city for the purpose of conferring with its merchants on the subject of the new countries which he had discovered and had described in a letter to the King, a copy of which letter was inclosed.' He then goes on to say, 'This statement must be false; first, because it was impossible that this obscure young man in Lyons could have come into the possession of this document in less than a month after it was written in Dieppe; and, secondly, because its transmission to a private person and a foreigner before communication with the King would have laid Verrazzano open to a charge of disloyalty, if not of treason.' In reply, we ask, where is the difficulty of the letter reaching Carli's hands, and why suppose the absurd impossibility of the copy being sent to the merchants before the original had been despatched to the King? Let us follow events as they ought to have occurred, and would naturally occur. Verrazzano reaches Dieppe on his return from his important voyage. As his first duty, he immediately sends a letter to his Majesty announcing the details. He learns that the King had already on the 2nd of July announced to his Parliament that he intends to go to Lyons. Verrazzano resolves to go there also; and as he wished, after his interview with his Majesty, to confer with the merchants of that commercial city on the importance of traffic with the countries he had discovered, he for-

wards to that city a copy of the letter which he had already sent on to the King. All this is in strict accordance with the contents of Carli's letter, which, moreover, shows in the plainest manner Carli's intimate acquaintance with friends of Verrazzano in Florence, a fact which sufficiently explains how the letter in question should have come into Carli's hands. Mr. Murphy himself acknowledges that Carli's letter was right in anticipating the arrival of the King in three or four days. Mr. Murphy's suggestion that there could not be time between the 8th of July and the 4th of August for the arrival of this news from Dieppe to Lyons seems simply preposterous. The distance is 380 miles; it would be a poor courier who could not compass that distance in twenty-seven days. While on this subject it is well to advert to another difficulty raised by Mr. Murphy of an exactly similar character. Verrazzano, it is well known, was a corsair or free-booter. We believe not much better can be said for some of our own Elizabethan explorers. Now there exists a letter of the famous Peter Martyr d'Anghiera, dated from Valladolid, August 3rd, 1524, the very day before Carli's letter was written, saying that a courier had arrived with news that Florin (short for Florentin, a name which had been given to Verrazzano in France) had captured a Portuguese ship on her way from the Indies, with a cargo of 180,000 ducats. Mr. Murphy says it was impossible. Impossible for 180,000 ducats to attract a buccaneer from Dieppe to the coast of Portugal within the space of three weeks! We fail to see the impossibility; but we do see that Verrazzano's presence in those latitudes would bring him on his way for falling in with the King; but this, though important, is a digression.

"Mr. Murphy next says that Verrazzano's letter is essentially untrue, because 'neither it nor any document, chronicle, memoir, or history of any kind, public or private, printed or in manuscript, belonging to that period or the reign of Francis I., mentioning or in any manner referring to it, or to the voyage of discovery, has ever been found in France; and neither Francis himself nor any of his successors ever acknowledged or in any manner recognized such discovery, or asserted under it any right to the possession of the country,' &c. Mr. Murphy himself supplies us with answers to the former portion, at least, of these statements. In a quotation from Andrade's *Chronicle of John III., King of Portugal*, he shows that 'King John, hearing that Verrazzano had offered himself to King Francis to discover other kingdoms in the East, which the Portuguese had not found, and that in the ports of Normandy a fleet was being made ready, under the favour of the admirals of the coast and the *dissimulation* of Francis, to colonize the land of Santa Cruz, called Brazil, ... accordingly sent to France an ambassador, João da Silveira, to ask Francis to give orders throughout his kingdom for the many robberies and injuries perpetrated on each other at sea, by the Portuguese and French, to cease.' In a letter from Silveira to the King, from Paris, dated April 25, 1523, he states that Verrazzano had not yet left for Cathay, an expression in exact accordance with Carli's letter, which says that his 'intention was to discover Cathay by the north-west and north,' the great desideratum since the return of Magellan's expedition. At any rate, there is here no lack of historical warranty for an expedition to the west, such as that which Verrazzano's letter described, while the above-quoted expression, 'dissimulation of Francis,' seems to show the *sub rosâ* character of the commission, evidently for buccaneering purposes; and to explain, in conjunction with the embarrassed position of Francis in 1524, his defeat at the battle of Pavia, and his capture and detention in Spain during 1525. how this voyage should not have met with the public official recognition which it otherwise would have called forth. That it was otherwise recognized is quite certain, as Mr. Murphy himself shows; for in 1539, seventeen years before Verrazzano's letter was printed by Ramusio, occurs the following passage in a famous document entitled *A Discourse of a great Dieppese Captain on the Navigation to the New Lands, &c.* Speaking of the countries between Cape Breton and Florida, he says, 'This coast was discovered fifteen years ago by Messire Jean de Verrazzano, who took possession of it in the name of King Francis I. and Madame the Regent.' This document, it is true, was first printed by Ramusio in the same volume with Verrazzano; but a document would not be the less genuine even if it had never been printed at all, nor should we be justified in supposing that all the documents, however independent of each other, which converge to the demonstration of some one great fact, form nothing but a tissue of falsifications and forgeries. Mr. Murphy will have it, however, that the passage is an arbitrary interpolation by Ramusio. Finding in the Verrazzano letter of Ramusio a passage which did not exist in the Carli version, although the latter self-evidently could not be an original, and the deviations from the Ramusio version are numerous, Mr. Murphy flies to the conclusion that the extra passage was an arbitrary interpolation by Ramusio, and, by way of balancing matters, now charges him with a similar arbitrary interpolation in the *Discourse of a great Dieppese Captain.*

"We have, of course, no room to pass under review the account of Verrazzano's voyage. Its imperfections —we do not quite see why the first description of a country should be the only one expected to be free from imperfections—are so treated by Mr. Murphy as to produce from him a verdict that it is 'an artificial description'; but when we turn to a less partial judge, Dr. J. G. Kohl, who devoted a thick octavo volume, published at Portland in 1869 by the Maine Historical Society, to a *History of the Discovery of the East Coast of North America*, we find that, after an analysis of Verrazzano's narrative, occupying twenty pages, in which he verifies satisfactorily his different points of observation, he gives the following verdict:—'It is to us the most interesting maritime undertaking made to our east coast during the first half of the sixteenth century, principally because it is the only one of this period upon which we have a full written report, composed by an eye-witness, himself the well-instructed commander of the expedition. The account is therefore invaluable.' We now reach the climax of the series of Mr. Murphy's constructive imputations. In 1525, the year following Verrazzano's voyage, another voyage to the same coast was made by Stevam Gomez, a Portuguese in the service of Spain, and in 1529 the Spanish cosmographer Ribero made a map of the world embodying Gomez's voyage. In the same year another map of the world was made by Hieronymo

Verrazzano, the explorer's brother; and in both these elaborate and beautiful maps we find the same contour of the east coast of North America. Ribero was a friend of Gomez, and on his map the country lying between New York and Cape Breton is designated the 'Tierra de Estevan Gomez,' while on the other map the name of 'Verrazzana' is given to the same region. But, besides this, Mr. Murphy states that, as all the courses and distances described in the Verrazzano letter correspond with similar divisions on Ribero's map, 'therefore this map was the source from which the Verrazzano letter was derived.' As a matter of fact we find no such 'divisions' on Ribero's map; but since the contour of the country is the same on both maps, it is obvious that if the courses and distances in the Verrazzano letter tally, as Mr. Murphy says they do, with the Gomez map, they will do so also with the Verrazzano map, which is exactly what we should have a right to expect; and it is equally clear that we must look for evidence outside of the maps to trace the source whence their cognate geography is derived. And what do we find? That, whereas we do possess a lengthy narrative, full of minute detail, of Verrazzano's voyage, which could bear the minute examination of Dr. Kohl by the light of our knowledge of to-day, and which it would be simply absurd to suppose to be constructed on the mere skeleton basis of a map, the following is the learned Doctor's comment on the Gomez voyage:—'We are unable to designate the track which Gomez followed on the ocean. No kind of ship-journal or report, written either by himself or any of his companions, has been preserved; and the Spanish historians, Oviedo, Herrera, and Gomara, who may have seen such a journal, are extremely brief in their accounts of this expedition, although it had a particular interest for Spain, being the only official expedition sent out by that country to the northern parts of our eastern coast.'

"In short, the Verrazzano letter contains details which could not have been gleaned from any previously existing accounts or maps. We must, therefore, differ from Mr. Murphy, not only as to the fraudulent fabrication of Carli's letter, but also as to the statement that without it Verrazzano's letter would fall through."

RETURN OF DR. BECCARI FROM NEW GUINEA.

At the time of going to press we have received from Professor Giglioli of Florence a long and interesting letter, addressed to him by Dr. Beccari, and bearing date Ternate, March 6th, which will appear *in extenso* in our next number. The Doctor enters fully into the ethnology of the inhabitants of New Guinea whom he has met, and states that he adheres to his previously expressed opinion that the Papuans are a mixed race. Becccari also gives an account of a trip made by him in the Dutch war steamer 'Surabaya' to Humboldt Bay. The natives here appear never before to have seen Europeans, and Dr. Beccari was very anxious to make researches in so promising a field, but some little misunderstanding with the natives led the captain of the 'Surabaya' to retreat.

Professor Giglioli considers that Beccari has evidently proved the existence in New Guinea of Negritos, viz., a dwarf negroid people, to be classed with the Ahita, Samang, and Mincopie of Asia, the Bushmen, and the Akka of Africa.

Dr. Beccari returned to Florence on the 19th June, in excellent health and spirits.

Reviews.

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SIR WILLIAM PARKER.*

REAR-ADMIRAL PHILLIMORE is well qualified to write the life of Sir William Parker, under whom he served for ten years, during nearly six of which he was his flag-lieutenant; and it is a life well worth writing, both on account of Sir William's high character and his public services; this life moreover derives a special interest from its forming a link which unites times now become historical with our own. Born before the recognition by England of the independence of the United States, Sir William was still alive ten years ago. One of Nelson's most trusted captains, he survived his great master more than sixty years. He who entered the navy at the time of the breaking out of the great war with France actually took a leading part in directing the great changes introduced into our navy of late years by steam navigation and the vast development of naval gunnery.

The family of the Parkers of Norton Lees in Derbyshire, and afterwards of Parkhall in Staffordshire, is one of both antiquity and distinction. The late Lord Campbell, in his life of Lord Macclesfield, loses no opportunity of discrediting this family, and informs his readers that Lord Macclesfield, the son of a village attorney, could not tell distinctly whether he had a grandfather; if, instead of evolving the family history of the Parkers out of his own brain, Lord Campbell had taken the trouble to inquire, he would have found that this indistinct grandfather was a person of sufficient importance to have been high-sheriff for Stafford in the reign of Charles I. Lord Macclesfield's first cousin once removed was Thomas Parker of Parkhall, Chief Baron of the Exchequer for a period of thirty years; his second son, George, seems to have been one of those characters, at all times too rare, who lay aside the pursuit of wealth or place to devote themselves to their home duties and the careful education of their children. He was the father of four daughters and five sons, of whom the future Sir William was the third, and amply did he repay his parents the care they had bestowed on him; his letters to them from the time he joined the navy till they severally died show his deep affection; and the first use he made of his prize-money was to settle an annuity of 300*l.* a year on them, and to send a present of a carriage and horses to his mother. It was with difficulty that he could prevail with them to accept this addition to their limited income; and he afterwards said, when persisting in it in spite of their repeated refusals, that "it was the first time in his life that he durst disobey their orders."

Whilst looking out for professions, Mr. George Parker was doubtless influenced in choosing the navy for his son William by his relationship to Sir John Jervis, afterwards Earl St. Vincent, who was both his first cousin and his brother-in-law. Sir John disapproved of this choice, and wrote to his brother-in-law, "When you consider that I am approaching threescore, and the small probability, from the aspect of

* *The Life of Admiral of the Fleet, Sir William Parker, Bart., G.C.B., from* 1781 *to* 1866; by Rear-Admiral Augustus Phillimore. Vol. I. London (Harrison, 59, Pall Mall), 1876.

foreign affairs, of any warfare happening in my time, I think you will be of opinion that a worse profession cannot be chosen." This letter was written July 14, 1792, more than two months after the revolutionary assembly at Paris had declared war against the Emperor. We remember that shrewd and observant traveller, Arthur Young, writing from France a very short time before this date, speaks of a war with that country as an event most unlikely to happen. So difficult is it, even for men of exceptional powers and experience, to read the signs of the times! In spite, however, of Sir John Jervis's opposition, young Parker, when just eleven years old, was sent to sea in the 'Orion' under Sir John, then Captain, Duckworth, a friend of his family. This was in February 1793, the very month in which began the great war between England and France so little foreseen two years before by Sir John Jervis, but which, with the brief exception of the peace of Amiens. was to last twenty-one years.

The 'Orion' took part in Lord Howe's great victory of the 1st of June, and our young sailor writes his father a full account of the action. In October 1796, when only fifteen, Parker was appointed acting-lieutenant, in which rank he was confirmed in March 1799. He was employed in the West Indies under Captain Ricketts during the eventful years of 1797 and 1798, probably the most critical in our whole history; in the first, the mutinies at Spithead and the Nore threatened the very existence of the nation. Mr. Pitt had for his First Lord of the Admiralty Earl Spencer (one of the ablest and most upright administrators who ever presided in that office), and with the assistance of Lord Howe and Sir John Jervis, and by a happy combination of concession with firmness and vigour, the mutinies were quelled, and the men returned to their duty. Soon after the suppression of the mutiny at the Nore, broke out the Irish rebellion; and the national alarm is indicated by the state of the Funds, the Three per Cents. fell to 47¾, the lowest point ever touched. The perils of this period were balanced by England's naval glory: the victory of Cape St. Vincent was gained in February 1797; Camperdown in October of the same year, and the Nile in August of the year following. In none of these did young Parker take part; nevertheless he was most actively employed, as is shown by a careful summary of the principal services of the 'Magicienne' whilst he served in her as acting-lieutenant. In a cruise of exactly two months, in 1799, he captured eleven schooners, seven brigs, and six ships; he was then acting as commander of the 'Volage'; in this rank he was soon after confirmed, and appointed to the 'Stork,' in which he remained till he was posted in October 1801, being then not twenty-one years of age. How absurd and detrimental to the public service is the modern *doctrinaire* plan of fixing ages before or after which professional rank or employment cannot be held! William Parker was a thoroughly able and competent post-captain at twenty; Lord Howe gained his victory of the 1st of June at the age of sixty-nine; Lord St. Vincent performed the great exploit of his life at the age of sixty-three; and Lord Camperdown was sixty-six at the victory which gave him his viscountcy!

When war was declared on the rupture of the peace of Amiens, in May 1803, Captain Parker was in command of the 'Amazon,' under Lord Nelson in the Mediterranean, and this is perhaps the most interesting and brilliant period of his life. He served Lord Nelson well and zealously under very difficult circumstances, but owing to the state of his ship, which was urgently in need of repairs, he was denied the satisfaction of being present at Trafalgar. In the following year the 'Amazon' and the 'London' fought and captured the French line-of-battle ship 'Marengo' and the frigate 'Belle Poule,' which had damaged our East Indian trade to an enormous extent. Captain Parker continued to command the 'Amazon' till she was paid off in 1812, and these years were spent in cruising in the Channel and off the coasts of Spain and Portugal, a service for the most part laborious and wearisome, and without much prospect of glory or profit. The French, after Trafalgar, were afraid to leave their harbours, our navy had done its great work, and the public attention was fixed on the army in the Peninsula.

Captain Parker had married in 1810, and some repose was doubtless not unwelcome to him. The peace, however, was followed by such reductions in our establishments that he was unemployed till 1827; and, as is pointed out with much force by Admiral Phillimore, according to recent regulations less than half of this period of inaction without a command afloat would have disqualified him from all active service! In 1827 he was appointed to the 'Warspite,' and after the battle of Navarino ordered to the coasts of Greece. In this command he showed much diplomatic skill and delicacy. In 1830 Captain Parker attained the rank of rear-admiral, and with this the present volume closes. The reader will rise from its perusal with admiration for the character of Sir William Parker, displayed chiefly in his letters, many of which have been preserved, and which the author has wisely given in full. The letters of the boy of twelve years old, whilst perfectly natural and unaffected, are well expressed, and abound in high spirit and good feeling. Of his superiors he always writes with respect: Captain Duckworth is "our brave, gallant, and steady captain," and "the brave, fighting, cool Duckworth"; Captain Foote is "one of the best men that ever was." This feeling was doubtless the result of that watchful care taken of their youngsters by the best captains of that time, and which afterwards gained Sir William Parker himself the veneration of those who served under him. With increasing responsibility his character developes. He was a strict disciplinarian, and his ships were always patterns, yet throughout his long career he never tried any officer or man by court-martial.

In the present volume Admiral Phillimore gives a valuable summary of the state of the navy, its discipline and strength, during the period of which he writes. The second volume will contain Sir William Parker's command of our squadron at Lisbon; his seat at the Board of Admiralty from 1834 to 1839; his conduct and successful conclusion of the war with China in 1842; and his command of the Mediterranean fleet from 1845 to 1852, a command unusually prolonged. The author will, doubtless, with these materials produce another interesting volume; and, as writing the life of his former chief is evidently a labour

of love, we trust that even his professional duties will not long delay the completion of his work.

WILLIAM WICKHAM.

LAKE ARAL AND THE ROOF OF THE WORLD.*

MAJOR HERBERT WOOD has produced a valuable work on a portion of Asia, which he was fortunate enough to visit as one of the members of an expedition despatched, in 1874, by the Russian Geographical Society. The author is no Russophobist, far from it; he rejoices in Russian progress in Central Asia, and fears nothing from it for the British possessions in India. His view may not prove acceptable to certain Government officials, but it is evidently based upon a careful study of the question, and is the true expression of the conclusions at which the author has arrived. The Russians and their subjects on the lower Syr Darya are evidently on the most friendly footing at the present time, and the author ascribes a great deal of the familiarity which may be observed to exist between the governing race and their subjects to ethnic affinities of race. As an Anglo-Indian this familiarity struck him much, and he is inclined to look upon it as an important factor, which has to be taken into account when considering the future of the Asiatic conquests that have recently been made by Russia. Major Wood is evidently of the opinion of Napoleon, who said that it was necessary only to scratch a Russian to discover the Tatar.

The great rivers of Western Turkistan, the Amu, and the Syr, have not fulfilled the expectations which were entertained with respect to them, as affording facilities for reaching the heart of the country. During the season of flood powerful engines alone can overcome the force of the current, whilst during low water they are hardly navigable at all. This is explained, in part at least, by the vast quantity of water withdrawn from them for purposes of irrigation. Only engineering works, on a scale of vastness not to be thought of for the present, at all events, could convert these rivers into practicable navigable channels, without rendering them at the same time useless for purposes of irrigation. The author is decidedly of opinion that it would be best to give up all thoughts of navigating them, and to utilise them to the fullest extent, in order to irrigate a far larger area than is irrigated at present, and thus call into existence a fertile region of vast extent, capable of supporting millions of people. That irrigation was more extensive in former periods is proved by the existence of many dried-up channels and of ruins, and if Russia seriously sets to work to realise the ideas developed in Major Wood's work, she will find a field for her superabundant energies, far more likely to redound to her honour and advantage than would the conquest of fresh territory.

Several chapters in this work treat of the past condition of the great Aralo-Caspian Basin, and these deserve to be read with care, for they contain much that is new. The author argues in favour of an intermittent overflow from the basin of Lake Aral, which would result in a temporary connection with the Caspian and even with the Black Sea (before the rupture of the Bosphorus) and the Arctic Ocean. This theory, the author believes, will reconcile many conflicting statements of ancient authors, and well agrees with the physical aspects of localities described in the past and existent at the present day. We imagine, however, that many of these conflicting statements are due to ignorance rather than to changes in the physical aspects of these regions. Our modern maps of Central Africa afford an amount of conflicting geography not inferior to that to be met with in ancient authors with respect to the Caspian and Lake Aral. In the latter case, however, changes have certainly taken place, and Major Wood adduces satisfactory evidence to show that the Caspian and Lake Aral at one time occupied a far more extensive area than they do now. He lucidly explains the reasons which led to the alternate shrinking and expansion of these lake basins, and supplies much valuable information on the hydraulics of the rivers which feed them. That the ancient bed or beds of the Oxus form a prominent subject for discussion, will take no one by surprise. There can be no doubt that the Oxus anciently took its course into Balkhan Bay, but the more southerly branch, by means of which Major Wood connects it with the Atrek, we cannot accept as yet. It certainly cannot have run in the direction indicated upon the map accompanying the work, unless there existed a subterranean passage through the mountains.

Major Wood's book contains a great deal of information interesting to the physical and historical geographer, and enables the general reader to inform himself of the aspects of one of the latest acquisitions made by Russia in Central Asia.

Sir Douglas Forsyth's special mission to Kashghar has been most fruitful in scientific results, and taken conjointly with the explorations carried on by native explorers, it has laid a solid foundation for all future geographical work which may be undertaken in Eastern Turkistan and in the countries of the Upper Oxus. The geographical results of this mission have already been published by Captain Trotter in an able Report submitted to the Government of India, whilst Dr. Bellew has furnished us with a popular account of some of its leading incidents. But as the latter took no share in the exploration of the Pamir and of Wakhan, which, after all, constitutes its most important feature, this present narrative, though not the first in the field, will nevertheless be received with interest. The author has avoided to enter into details with respect to countries already fully described by modern travellers, and a considerable portion of his volume is devoted to a description of the Pamir and of Wakhan. The interest of his narrative is enhanced by numerous illustrations, and though these may not always be unexceptionable as works of art, we prefer them to the showy but deceptive pictures illustrating most of our modern books of travel, and produced by professional artists from the rough sketches brought home by travellers.

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* *The Shores of Lake Aral*, by Herbert Wood. London (Smith, Elder & Co.).
The Roof of the World, by Lieutenant-Colonel Gordon. Edinburgh (Edmonston & Douglas).

CHOLERA EPIDEMICS IN EAST AFRICA; with an outline of the geography, ethnology, and trade connections of the regions through which the epidemics passed. By *James Christie, A.M., M.D.* London (Macmillan & Co.), 1876.

THIS work is one of considerable importance in the history of epidemics. From his position as physician to the Sultan of Zanzibar, Dr. Christie was exceptionally favourably situated for acquiring information, as far as the East Coast of Africa is concerned. He tells his readers that a vast quantity of facts relating to the progress throughout Africa of the epidemic which visited Zanzibar in 1869-70 were communicated to him by natives, and that he has satisfied himself in most cases of their wonderful accuracy. The main deduction of importance in the work is that the epidemic of 1865 on the Somali Coast, and that of 1869-70 in Zanzibar, were but two great branches of the great epidemic of 1865. The whole progress of the disease, through the Somali country, along the coast northward to Aden, thence to Jeddah and across the Red Sea, through Abyssinia and the Galla country to Zanzibar, is mapped out before the reader, and the arguments established with great clearness; for, notwithstanding the scantiness of our knowledge of Central and Eastern Africa, the investigation of the spread of epidemics is much facilitated by the facts that the manner and customs of the people are of the most primitive order, and that the great highways of human intercourse are few and seldom departed from. The interest of the present work, however, is by no means confined to its pathological side. It affords us an extremely vivid picture of the mode of life of the inhabitants of Arabia and East Africa, most of the details being drawn by the author from actual observation, while, for others he has borrowed from the works of Burton, Palgrave, Speke, and Livingstone, and other travellers of equal repute and trustworthiness.

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BIBLIOGRAFIE VAN NEDERLANDSCHE BOEKEN, BROCHURES, KAARTEN, ENZ. OVER AFRIKA; door *Prof. P. J. Veth* en *Dr. C. M. Kan.* 8vo., pp. 100. Utrecht, 1876.

IN a paper on the history of discovery in Africa, Dr. Kiepert charged the Dutch with having done little or nothing towards the exploration of the interior of that continent, although during several centuries they held considerable territories on its coast. This remark has given offence in the Netherlands. It is admitted by the compilers of this bibliography that the Dutch cannot rival English, French, German, and Italian explorers, but they maintain that they have nevertheless done a great deal of useful work, particularly as regards our knowledge of Barbary, the Gold Coast, and Cape Colony. In order to make good this assertion they have compiled the valuable bibliography now before us, which contains a list of books, papers, articles, and maps, published or in manuscript, which owe their origin to Dutchmen. This bibliography must prove exceedingly useful to all those who make any portion of Africa their special study, for the existence of many of the works mentioned in it is now made known for the first time.

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BULLETIN OF THE EGYPTIAN GEOGRAPHICAL SOCIETY, No. 1.

WE have received the first number of the *Bulletin Trimestriel de la Société Khédiviale de Géographie du Caire*, which contains the diary of Linant de Bellefonds' journey to the Victoria Nyanza, an account of the territories of the Beni Amer and Habab by Heuglin, and a necrological notice of Munzinger by Dor Bey. There are two capital maps, and the periodical promises to become one of great importance with reference to African exploration. We regret that Dr. Schweinfurth should have felt constrained to resign his position as President of the Society, in consequence of misunderstandings which have arisen between him and the chief of the Egyptian Staff, General Stone, with reference to the direction of the scientific explorations to be set on foot by the Khedive's government.

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NOTIONS ÉLÉMENTAIRES SUR LES IRRIGATIONS CONSIDERÉES PLUS SPÉCIALEMENT DANS LEURS RAPPORTS AVEC LES DIVERS CLIMATS DE FRANCE. Par *T. Charpentier de Cossigny.* (Paris, 1875.)

THIS prize work, published by the Society of Agriculture of France, holds a recognised position to which there is no parallel in England, where such works are generally both written and published at the expense of their authors. It may be said to be a careful compilation by an eminently scientific civil engineer of all the information bearing on the subject, and as such is of national importance; apart from the intrinsic merit of the remarks, opinions, and suggestions with which it abounds.

It may be noticed that while oriental irrigation, having for its principal object the supply of moisture, varies much from irrigation in cold climates, which has for its chief object the application of fertilising matter to soil, and in which the water acts mostly as a vehicle, in France both of these modes are prevalent, the former in the south, the latter in the north; thus irrigation in France is of the most comprehensive description, including, it may be said, that practised in India, and that in vogue in England. In France, these are distinguished as summer and winter irrigation, or as that of cultivated crops and that of permanent pasture; under the former head being included field and garden crops, orchards and vegetables of all sorts, while such herbaceous plants as are best able to accommodate themselves to a continued state of moisture, and generally constitute permanent meadows, are alone included under the latter. Under a third heading is treated that species of irrigation that is effected by the employment of town drainage, although it is also occasionally brought in under the two former.

The arrangement of canals, channels and trenches of distribution, and the disposition of land for irrigation, is most thoroughly entered into, and aptly terminated by a summary of the principles to be kept in view in practice. The various qualities of water, its soluble and suspended matters; the quantity of water used in watering various crops; the seasons, duration, and intervals of irrigation necessary and suitable to different conditions of soil and climate, are treated at full length, no less than half of the book, consisting of 637 pages, being devoted to this part of the subject. Fifty pages are given to the various modes of improving land, that cannot strictly be classed as irrigation proper, as warping, remaking the surface, drainage of marsh land, and cleansing it from saline matter, subsurface drainage, and the formation of permanent meadows. A chapter of eighty pages also treats on gauging, dams, reservoirs, shutters and regulating appliances.

While, therefore, this work is highly valuable to landowners and agriculturists in France, it also contains much that is acceptable to us on this side of the Channel, although it is much to be regretted that data of cost, expenditure, and return have not entered more largely into its composition.

Cartography.

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THE progress of the ORDNANCE SURVEY* during the year 1875 has been satisfactory as far as the work of surveying is concerned, but we are sorry to say that there has been no improvement as regards rapidity of publication, and the unpublished plans and maps appear to be accumulating at an increasing rate. General Cameron, who has been placed at the head of this important public department on the retirement of General Sir Henry James, is fortunately fully alive to the importance of keeping up with the surveyors; and we learn from his report that he is now training a larger number of assistants in engraving, and hopes soon to make greater progress in this important branch of the work. As far as numbers go this increase to the staff of the survey does not, however, appear to have been very large hitherto, for the number of civil assistants, upon whom devolves the work of drawing and engraving, was 1000 on the 31st of December, 1874, and 1015 on the same day in 1875. This small increase of fifteen men will hardly tell upon so large an enterprise; and we doubt whether it would not be better, under existing circumstances (for which the present director can hardly be held responsible), to have recourse to some photo-lithographic or other process, speedier than engraving on copper, for producing the 6-inch maps, for the present delay in their publication deprives them of much of their value.

The area surveyed on a scale of at least 6 inches to a mile amounted in 1875 to 1186 square miles for England and Wales, and to 1117 square miles for Scotland. This is 818 square miles less than in 1874. In England and Wales the surveyors were engaged in the Midland Counties, in Wales, in Essex, Herts, Berks, Bucks, Oxford, Gloucester and Wilts, and in Cornwall. Extra surveys of Exeter and Barton-on-Irwell were made on a large scale, the local authorities having undertaken to defray the larger portion of the expense. Out of a total area of 58,000 square miles, 27,491 have now been surveyed.

In Scotland the progress of the survey, taking into account the smaller area of the country, has been far more rapid than in the sister kingdom. The surveyors, last year, were at work in the Hebrides and Orkneys, and they underwent considerable hardships, as the wild and uncultivated nature of the country compelled them frequently to encamp in the open air. They surveyed 1117 square miles (1029 in 1874), and there remain now only to be surveyed a small portion of the Hebrides, a portion of the Orkneys and the Shetland Islands. It was stated in last year's report that the area surveyed at the close of 1874 amounted to 28,858 square miles. The present report gives 29,297 square miles for the close of 1875. As 28,858 + 1117 (stated to have been surveyed in 1875) make 29,975, there exists thus an error in the reports of no less than 678 square miles, which we are unable to clear up.†

In Ireland the surveyors have confined themselves to a revision of the old maps, and are engaged at present in the county of Cavan, and there, as well as in Great Britain, several minor surveying operations were carried on for government or local authorities.

The publication of the surveys, as has already been stated, did not proceed as rapidly as could be desired, except in favoured Scotland, where, in spite of the heavy hill-work, the engravers have been gaining for some time past upon the surveyors. The area published on the 6-inch scale amounts now to 16,894 square miles for England and Wales, and to 21,332 square miles for Scotland; and there have been surveyed, but not yet published, 10,597 and 8,643 square miles respectively. But whilst in Scotland these arrears have been reduced considerably in the course of the year, they have increased, in England and Wales, to the extent of 917 square miles! The position of the 1-inch map is even more deplorable, for although, as far as concerns England and Wales, there are materials for filling up 143 sheets out of the 360 of which the new Ordnance Map will consist, there have been published as yet only ninety-seven sheets, of which twenty-four still remain without hills. Eight of the latter* were published in the course of last year. They refer to the counties of Kent, Essex, and Hampshire; and the whole of Kent and Surrey, nearly the whole of Middlesex and Hampshire, and the southern portion of Essex, have now been published on that scale, in addition to the whole of northern England. Thirteen more sheets are in the hands of the engravers, but with some of these very little progress has been made. In Scotland the progress of the 1-inch map is far more satisfactory than in England. There are surveys extant for filling up 117 sheets, of these fifty-six have actually been published with the hills complete, twenty have been published in outline, and ten are in the hands of the engravers, some of them in a considerable state of advance.†

The parish plans, on a scale of 1 : 2500, appear to be pushed forward with far greater vigour than the maps on a smaller scale, which can, no doubt, be justified by practical considerations. They cover now an area of 13,166 square miles in England and Wales, and 11,107 square miles in Scotland, being an increase of 1838 square miles in a single year. The plans of towns, on a still larger scale, have likewise increased considerably in number in the course of last year. Seventeen sheets of the detailed map of London, on the 5-feet scale, have been published, and there are now in the hands of the public no less than 297 sheets out of the 326 of which it will ultimately consist. Ten sheets of a detailed map of London, on a scale of 1 : 2500, have likewise been published, as well as plans, on a scale of 1 : 500, of the following towns:—Brixham, Chester, Chichester, Congleton, Crewe, Denbigh, Hastings, and Maldon. In Scotland no plans of this nature have seen the light during last year; but in Ireland, plans of Bagenalstown, Carlow, Dungannon, Leighlinbridge, and Tullow, have been published. The 6-inch and 1-inch maps of Ireland have been completed long ago, and whilst the sheets of the former are gradually being brought up to date, those of the latter are having the hill-features engraved upon them. Seven sheets of it were published in the course of last year.‡

The staff of the Ordnance Survey, last year, consisted of twenty officers, 358 non-commissioned officers and sappers, 1015 civil assistants, and 454 labourers. Compared with 1874, there is an increase of fifteen civil

* *Report of the Progress of the Ordnance Survey* to the 31st of December, 1875 (presented to both Houses of Parliament). London, 1876.

† In the Report for 1875 the total area of Scotland is given at 30,000 square miles, which is clearly only a very rough approximation. The area actually surveyed, according to this same report, amounted to 29,297 square miles. There remained to be surveyed 350 square miles in Argyll, Inverness, and the Orkneys, and the whole of the Shetlands (615 square miles according to the census). The total area of Scotland would thus amount to 30,262. But if we go back to some of the older reports on the Ordnance Survey, we obtain even a higher result. At the close of 1872 there had been surveyed 16,277 square miles. To these must be added (areas according to the Reports) Argyll, 3380; Caithness, 703; Inverness, 4255; Ross and Cromarty, 3258; Sutherland, 2120; Orkneys, 440; Shetlands, 615 square miles. This makes 31,048 square miles for the whole of Scotland. There may probably be an error with reference to the area of Inverness, which agrees with the figures given in the Census Returns for 1871, although the survey had not then been completed.

* Sheets 258, 259, 273, 284, 290, 304, 305, and 321.

† Five sheets were published last year with the hilfeatures engraved upon them, viz., 29, 64, 75, 95, and 96.

‡ Sheets 32, 45, 48, 54, 67, 68, and 98.

Map of the
BRITISH ISLES
SHEWING THE STATE OF THE
ORDNANCE SURVEY
on the 31st Decr 1875.
Published on 1 inch Scale with Hills.
Do Do without Hills.
Surveyed, but not published on a Scale of 1 inch to the Mile.
SHETLAND ISLANDS
ORKNEY IS
CAITHNESS
SUTHERLAND
ROSS & CROMARTY
INVERNESS
BANFF
ABERDEEN
Aberdeen
FORFAR
Montrose
Arbroath
PERTH
Perth
KINROSS
Kirkcaldy
STIRLING
ARGYLL
Glasgow
Edinburgh
HADDINGTON
BERWICK
LANARK
Hamilton
Ayr
Irvine
Kilmarnock
PEEBLES
SELKIRK
ROXBURGH
Hawick
DUMFRIES
Dumfries
KIRKCUDBRIGHT
Carlisle
NORTHUMBERLAND
Newcastle
Tynemouth
Shields
Sunderland
DURHAM
Durham
CUMBERLAND
WIGTOWN
Londonderry
DONEGAL
ANTRIM
Belfast
TYRONE
FERMANAGH
ARMAGH
DOWN
SLIGO
LEITRIM
MONAGHAN
MAYO
CAVAN
LOUTH
Drogheda
ROSCOMMON
LONGFORD
WESTMEATH
GALWAY
Galway
KING'S
KILDARE
Dublin
QUEEN'S
WICKLOW
CLARE
CARLOW
Limerick
LIMERICK
TIPPERARY
Kilkenny
WEXFORD
KERRY
Waterford
CORK
Cork
I. OF MAN
Barrow
Lancaster
WESTMORELAND
Middlesborough
YORKSHIRE
York
Bradford
Leeds
Hull
Preston
Halifax
Bolton
Huddersfield
Manchester
Sheffield
Liverpool
Stockport
Macclesfield
Lincoln
ANGLESEY
CHESHIRE
Chester
NOTTS
LINCOLN
Derby
Nottingham
Boston
DENBIGH
CARNARVON
MERIONETH
Shrewsbury
STAFFORD
Leicester
Norwich
Yarmouth
NORFOLK
MONTGOMT
SALOP
Wolverhampton
Birmingham
Coventry
RUTLAND
HUNTS
Dudley
NORTHAMPTON
Bury St Edmunds
SUFFOLK
RADNOR
Worcester
WARWICK
Bedford
Cambridge
Ipswich
GARDIGAN
HEREFORD
Colchester
PEMBROKE
CARMARTHEN
BRECON
Gloucester
Oxford
BUCKS
HERTS
ESSEX
GLOUCESTER
MONMOUTH
Newport
Swansea
GLAMORGAN
BERKS
Reading
Bristol
Bath
WILTS
SURREY
Maidstone
Canterbury
KENT
SOMERSET
Salisbury
HANTS
Winchester
Southampton
SUSSEX
Brighton
DEVON
Exeter
DORSET
Portsmouth
CORNWALL
Falmouth
CHANNEL ISLANDS
Guernsey
FRANCE
Jersey
FRANCE
10°
8°
6°
4°
2°
0°
2°
60°
58°
56°
54°
52°
50°

assistants, and a decrease of fourteen non-commissioned officers and sappers and six labourers. The sale of maps and other publications yielded 9303*l.*, as compared with 8447*l.* during the preceding year.

The map which accompanies this notice speaks for itself. It exhibits the present state of the Ordnance Survey.

THE MAP OF FERGHANA* and adjacent districts, compiled by Colonel Liusilin, of the Asiatic branch of the Russian General Staff, is neatly lithographed and printed in colours, but can hardly be said to contain any fresh information. The surveys made during the last campaign in Khokand have certainly not been embodied in it. The old khanate of Khokand appears divided into two districts, viz., Namangan to the north of the Syr Darya and Naryn, and Ferghâna to the south of it. The boundary towards the south and in the direction of Kashgar is merely indicated. It is made to include the plateau of Alai, but not Karatigin, and extends on the road to Kashgar as far as Yassi Kichik.

MR. STANFORD has published a Map of CENTRAL ASIA,† originally constructed by the late Mr. Arrowsmith, for the *Journal of the Royal Geographical Society*. The map is very neatly engraved, it has been carefully brought up to date, and fairly embodies our knowledge of the countries stretching from the Caspian to the territories of Amir Yakub of Turkistan.

Log Book.

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The Arctic Winter of 1875-'76.—News respecting the winter along the whole coast of Greenland, from Melville Bay to Cape Farewell, has been brought home by the brig 'Thjalfe,' which arrived at Copenhagen on the 14th of June.

During the early part of the autumn of 1875 the weather was changeable with strong winds. In October and November there were short periods of calms. The winter was decidedly mild, no real cold occurring before the last half of December, when the thermometer at Upernivik sank to −15·25 F.; and at Tasuissak, the northernmost outpost beyond Upernivik to − 24·25 F. Ice fit for sledging upon did not form at Upernivik until the end of December. It then remained pretty firm until it was broken up by southern and south-eastern gales, with mild weather from the 19th to the 30th of March. From all the North Greenland settlements the reports are the same—the weather mild and the ice unsafe.

The communication from the extreme north was effected by sledge-post from Upernivik to Egedesminde, and thence to South Greenland by "*kayak*"-post, meeting the 'Thjalfe' at Sukkertoppen in May.

The Danish brig 'Thjalfe,' commanded by Captain Brockdorf, sailed from Copenhagen for Greenland on the 30th of June, taking out a mail for the Arctic Expedition. This is her second trip this season. She goes to Egedesminde, and thence to Ritenbenk; the letters being taken across Disco Bay, from Egedesminde to Godhavn, by "*kayak*"-post.

The Pandora.—The Arctic yacht now on her way to the entrance of Smith Sound contains thirty-three souls, the majority having formed part of her crew last year. In the following list, those with an asterisk (*) belonged to the crew of 1875:—

* ALLEN W. YOUNG, R.N.R. ...	*Captain.*
CHARLES R. ARBUTHNOT, R.N.	*Lieutenant.*
* GEORGE PIRIE, R.N.	*Navigating Sub-Lieut.*
V. BECKER	*Lieut. Austrian R.N.*
* L. R. KOOLEMANS BEYNEN ...	*Lieut. Netherlands R.N.*
W. GRANT	*Photographer.*
* A. C. HORNER	*Surgeon.*
* Henry Mitchell	*Gunner.*
William Taylor	*Boatswain.*
* H. James	*Carpenter.*
* Benjamin Ball	*First Engineer.*
* Archibald Porteous	*Second Engineer.*
* W. H. Edwards	*Ship's Steward.*
* Charles Tizzard	*Boatswain's Mate.*
* Thomas Florance	*Captain of the Hold.*
* William Randerson	*Quartermaster.*
* Henry Andrews	*Quartermaster.*
William Berry	*Quartermaster.*
William Greenfield	*Sailmaker.*
* George Thorne	*Captain of the Maintop.*
George Pearce	*Captain of the Foretop.*
* Charles Vine	*Officers' Steward.*
William Merick	*Ship's Cook.*
* Alan Gillies	*A.B.*
George Smithers	*A.B.*
William Rickett	*A.B.*
William Owen	*A.B.*
William Battam	*A.B.*
P. de Gruchy	*A.B.*
F. Pressley	*A.B.*
* Edwin Griffey	*Stoker.*
Henry Dennis	*Stoker.*
Samuel Haines	*Ordinary Seaman.*

Exploring Expeditions in Greenland.—In the summer of 1875, Mr. Helland, a Norwegian geologist, visited Greenland, and made some exact and consequently very important observations on the rate of movement of the interior ice. His measurements were made at the great Jacobshavn glacier, and also at the Itifdliarsuk glacier, at the opening of the Tossukuset Fiord, whence the great harvest of icebergs sweeps down the Waigat. We hope to be able to give some account of Mr. Helland's observations in our next number.

In April 1876, Mr. Steenstrup, the eminent geologist, and Lieutenant Holm, a young and enterprising officer of the Royal Danish Navy, sailed for Greenland, with the intention of penetrating into the interior. The first attempt will probably be made from the Tunnudliarbik Fiord, near Julianehaab, in the hope of being able to reach a mountain-peak which has been observed in the far distance to pierce the surface of the glacier, and is known as the "Jomfruerne" or "Niviarsiæt." But this will only be preliminary, and the gallant explorers intend to renew their attempts for three or four years, until they succeed. We are glad to hear that the Danish Government has been able to grant the necessary funds for this noble enterprise.

Dr. Rink's New Work on Greenland.—Up to the present date we have no authoritative work on Greenland in the English language. Crantz's, Saabye's, and Egede's works have been translated,

* Map of the district of Ferghâna (the former Khokand), with the adjacent parts of Turkistan, &c.; by Colonel Liusilin. Scale 20 versts to the inch. St. Petersburg, 1876.

† Central Asia, constructed from the latest English and Russian documents, and adapted to recent astronomical observations, by the late John Arrowsmith, with additions and corrections to 1876.

but even these were very imperfect at the date they were written, and are now altogether obsolete. The other books in which the country is referred to are either the production of unscientific tourists, who have passed along the coast, or of those who were manifestly ignorant of the country. Though the Natural History of Greenland has been well investigated, both by English and Danish naturalists, yet hitherto a readable work on the country has been inaccessible to English readers. There was only one man in Europe who was capable of producing such a work. That man was Dr. Heinrik Rink, who was for twenty-two years Governor of South Greenland, and is at present President of the Board of Trade in Copenhagen, charged with the direction of Greenland commerce. More than twenty years ago, his treatise on the Geology of Greenland was crowned by the Danish Royal Academy of Sciences, and up to the present time his *Grönland Geographisk og Statistisk Beskrevet*, in two volumes, has been the only authority for Greenland statistics. Unfortunately, however, it was in Danish, and, from its technical character, was never translated. In course of time it has even got somewhat out of date. Last winter, Dr. Rink published in English his *Tales and Traditions of the Eskimo*. Encouraged by the very favourable reception which that work met, he proposes, we are happy to learn, to publish in the course of a few months a new work in English on the General History of Greenland and its people. It will be in one volume, and will give a complete and accurate, though popularly written, account of everything which is known concerning the land with the government of which he has been so long connected. It will contain an appendix relating to the natural history, containing an abridged and revised summary of the botany, geology, zoology, and meteorology of the country, and will be illustrated by a series of plates (facsimiles of drawings by the Greenland Eskimo), and a new map. Some of these illustrations we have seen, and can vouch for their minute accuracy. This work, apart from original discovery, of which we trust the return of the Arctic Expedition will enable us to record much, promises to be one of the most valuable contributions to Arctic geography which has been published for many years.

The Population of the German Empire.—The German Statistical Department has just published the preliminary result of the Census taken on the 1st of December, 1875, from which it appears that the increase of the population, since the same date in 1871, amounts to 4·04 per cent., and the population now amounts to 42,757,812 souls. During the preceding period of four years (1867-71), the increase only amounted to 2·32 per cent., a fact sufficiently accounted for by the losses sustained during the Franco-German War. The rate of increase during the last four years varied greatly in the different provinces of the Empire, and in a few small districts (Mecklenburg-Strelitz, Lauenburg, and Waldeck) the population decreased. The greatest increase took place in the large towns and in the industrial districts. Foremost amongst them stands Brandenburg, with an annual increase of 2·25 per cent.; then follow Westphalia, 1·79; Rhineland, 1·54; Royal Saxony, 1·32; Brunswick, 1·26; Hesse-Nassau, 1·21; &c. The increase was least in Southern Germany, which cannot boast of manufacturing districts, such as exist in the North. Bavaria increased at the rate of 0·82 per cent., and the increase in Würtemberg was hardly more. A novel feature in this Census is the employment of "census tickets," one of which was issued for each individual.

Circumnavigation of Lake Albert Nyanza.—The recent circumnavigation of Lake Albert Nyanza, by M. Gessi, one of Colonel Gordon's party, shows that its dimensions are very much the same as laid down by Speke, from native information, in 1863, when he inserted it in his map under the name of Little Luta Nzige. The lake proves to be 140 miles in length and 50 miles in width; its banks are clothed with dense forest; the western side is very mountainous, and the southern end very shallow. This sets at rest the question respecting the possible connection of Lakes Tanganyika and Albert*, and it also determines the existence of another source of the Nile. Colonel Gordon has already established stations at Masindi and Magungo, and there now appears good reason to believe that his intention of speedily exploring the surrounding regions will be realised.

Funeral Rites of the Little Russians.—M. Kibalchich has communicated to the Ethnological Section of the Russian Geographical Society an interesting account of the funeral rites of the Little Russians. Weeping women attend each funeral; sometimes they are relatives. Various objects and silver coins are placed in the coffin, in order to assist the deceased on reaching the other world. Superstitions abound. A knocking on the wall, the cackling of a hen or crowing of a cock, the cry of an owl, the loss of a tooth, are omens of death. On the death of any person, his or her star falls from heaven. The clothes of the deceased are given to beggars, and a basin with water is placed outside the window in order that the departed soul may wash itself before it starts for another world. This water likewise symbolises the journey by water, which is supposed to be necessary in order to reach the other world. The pieces of wood and shavings left on making the coffin are placed inside, as are also the tools of deceased mechanics.

An old woman throws handfuls of corn upon the guests invited to the funeral, and upon the roads by which they travel. This ceremony is supposed to render wealthy those who are subjected to it, and to prevent the deceased—who is usually supposed to become inimical to the survivors—to carry away with him the wealth he left behind him.

Cows are placed round the coffin, to purify the house in which the death took place. The soul of the deceased is believed to assume the shape of a butterfly, and to remain in the house for some time after death has taken place. Hens and cats are driven out of the house, for fear they should swallow it.

The dead work more evil than good upon the survivors. Nevertheless, mothers sometimes return to their children, dress, nourish, and nurse them; but in such a case the children must keep this secret, and the slightest indiscretion on their part would draw upon themselves, and upon the whole village, the vengeance of the mothers.

Bridegrooms frequently return to claim their brides;

* See *Geographical Magazine* for 1874, p. 514.

they drag them to the cemetery and precipitate them into the grave.

On the return from a funeral the invited guests sit down to a meal. A cover is laid for the deceased, who is supposed to preside.

Men and women save up, during the whole of their lives, the parings of their nails. The relatives place them in the coffin, for they may be of use when climbing over the mountain which stops the way to the other world.

Funerals take place at sunset, in order that the stars may guide the soul on its journey to heaven. The shells of Easter eggs are thrown upon the graves, in order to remind the dead of the day of resurrection.

The world will come to an end when the cock ceases crowing.

Correspondence.

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THE DISCOVERY OF AUSTRALIA

To the Editor of the "GEOGRAPHICAL MAGAZINE."

SIR,—In the *Proceedings of the Royal Geographical Society*, 1872, p. 352, the views of Mr. Major are recorded to the effect that he, after strict investigation, has changed his opinion concerning the discovery of Australia. Till then he believed it was the Portuguese and not the Dutch who might rightly claim the honour of discovery; now, however, he appears to be convinced that we are indebted for it to some inhabitants of Southern France, "the Provençales," and more especially to Guillaume le Testu; and he observes that there is extant in the Archives du Dépôt de la Guerre, at Paris, a map of the year 1555, bearing the name of Guillaume le Testu, and mentioning Grâce as the birthplace of its author, and on which the outlines of Australia are vaguely defined.

At the last International Geographical Exhibition, however, a hidden treasure was brought to light—not one map, but a complete magnificent atlas containing forty maps, all by the hand of Guillaume le Testu. From the text accompanying these maps Mr. Dornseiffen, one of the Dutch jurors at the exhibition, gleaned everything bearing on the discovery, and published it in the *Tijdschrift van het Aardrykskundig Genootschap*. After perusing this we may be quite sure that Guillaume le Testu was born at Havre-de-Grâce and not at Grasse in Provence, and that he never laid a claim to the honour of being the discoverer of that land.

The title of that atlas is: *Cosmographie universelle selon les navigateurs tant anciens que modernes, par Guillaume le Testu, pilote en la mer de Ponant, de la ville francoyse de Grace, dediee a l'amiral Coligny.*

On folio 2 he mentions the fact of his having finished the atlas the 5th of April, 1555.

According to Mr. Major, the discovery of Australia took place in the year 1543, which could never have happened, at least, with the knowledge of Guillaume le Testu, as, in his outline of Australia, which he appears to have inserted as a sort of counterbalance to the land found at the North Pole, and in which no names of places or anything of that kind are to be seen, he himself writes:—

"Cette partie est la mesme terre du su dicte Australie laquelle na poinct encor este decouverte pource quil nest memoire quantcun laict encore cherchee et pource quelle nest marquee que par imaginaction je ne puis riens decripre des comodites dicelle, pour raison de quoy je laiseray de plus en parller jusque a ce que plus ample decouverture en aict este faicte et combien que jaye ecript et notte quelques nomps sus quelques caps ce na este que pour radreser les preches ici depeinctes les vues des autres et ausy affin que ceulx la lesquelz navigueront se donnent garde lorsquils auront oppinion quil aprocheront la dicte terre."

We may rest assured that Australia was undoubtedly discovered in the year 1606, by a Dutchman named Willem Jansz, captain of the ship 'Duyffhen.'

I am, &c.,

J. D.

AMSTERDAM, *15th June*, 1876.

—:o:—

To the Editor of the "GEOGRAPHICAL MAGAZINE."

SIR,—In reply to the foregoing, I beg leave to say, that the valuable volume of MS. charts by Guillaume le Testu, exhibited last year in Paris at the Congrès International de la Géographie, to which Mr. J. D. refers as a new *trouvaille*, is by no means a novelty to me. It is the selfsame volume to which I have at all times referred with regard to the early discovery of Australia in connection with the name of the pilot Guillaume le Testu. Mr. J. D. uses the expression "not one map, but forty." My words, quoted by Sir Henry Rawlinson—"a map in a Portulano," mean the same thing. But what I would wish to call Mr. J. D.'s attention to, as unobserved by him, is the remarkable fact that, while it is true that the Australia indicated upon the various old French maps, to which I have so often had occasion to call attention, is in some of them connected with a vast continent spreading indefinitely over the whole southern portion of the globe, there are distinctive indications which confine the evidence of actual discovery with a considerable amount of accuracy to the continent of Australia itself. To start with, the contour of the country in question is alike on all these maps; but in one of them, that of Jean Rotz, of 1542, the coast line, both on the east and west sides of that country, ceases at points which imply actual discovery. For example, the western coast-line terminates in 35°, the real latitude of the south-western point of Australia. The eastern coast-line is not so correct, extending far lower even than the southernmost point of Van Diemen's Land; but, from its distant position, it would be the part least likely to be explored, and, though incorrectly delineated, it accords with the general fact that the southing of the eastern coast-line is much greater than that of the western. But what I would principally call attention to is, that this country is on this map absolutely *severed* from the great imaginary Terra Australis. Le Testu's map, also, though not showing this severance, bears legends which distinguish the discovered from the undiscovered parts. Moreover, the dangers existing on the north-east coast of Australia are distinctly laid down on these maps.

Mr. J. D. says that I have assigned the date of 1543 to the actual discovery of Australia. I have carefully read through the short article by Sir Henry Rawlinson, to which Mr. J. D. refers, and I find no such statement. Indeed I could never have said so, for the Portulano of Jean Rotz, of which I have just been speaking, actually bears the earlier date of 1542. Mr. J. D. quotes above from the volume of Guillaume le Testu, a legend commencing "Cette partie est la mesme terre," &c., which might, at first sight, appear to disprove, on Le Testu's own evidence, the fact of the early discovery.

If, however, Mr. J. D. had studied the subject and Guillaume le Testu's volume with the same anxious closeness that I have done, he would have observed that that passage occurs on a part of the great imaginary and indefinite Southern Continent *outside* of the range of actual exploration as indicated in the way to which I have already called attention.

Mr. J. D. is perfectly right in saying that the expression in Guillaume le Testu's volume, "Ville Françoyse de Grace," means "Havre-de-Grâce," and

not, as I originally thought, Grasse in Provence. It was my late honoured friend, M. d'Avezac, who informed me that the word "Françoise" in this name was not an adjective derived from "France," but from "François," and belonged to Havre-de-Grâce, for which town François-Ville was an alternative name.

I am not ashamed to say that I believe most persons, without special information on the subject, would, like myself, have fallen into the conclusion that the expression "Ville Françoyse de Grace," used at the date of 1555, on a French map of the whole world, would mean the "French town of Grace," and the conclusion that Grasse in Provence was meant was especially tempting in connection with those indications of Provençal names on these various French maps, which I have elsewhere referred to in detail, and need not here repeat. No man has more frequently than myself made allusion to the discovery of Australia by the Dutch vessel the 'Duyffhen,' in 1606; but the earlier discovery, by whomsoever it was made, in the first half of the sixteenth century, remains, as ever, an incontrovertible fact.

I am, &c.,

R. H. MAJOR.

BRITISH MUSEUM, *26th June*, 1876.

Proceedings of Geographical Societies.

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ROYAL GEOGRAPHICAL SOCIETY.

Meeting of June 12th, 1876.

LAKE NYASSA.

SIR RUTHERFORD ALCOCK took the chair at 8.30 p.m. The President opened the business of the evening by stating that the letter about to be read had been received from Mr. E. D. Young, who it would be remembered was originally engaged with Dr. Livingstone in the Zambesi expedition, and was afterwards, in 1867, selected to inquire into the truth of the rumour of Dr. Livingstone's death. He had performed that mission with great zeal and intelligence, and was subsequently chosen by the United Scotch Missions Committee to lead their missionary party last year to Lake Nyassa. After establishing a mission station, he could not resist the temptation of further exploring the lake, which he found extended 100 miles from what was previously known of it.

The following letter, addressed to the Secretary of the Royal Geographical Society, was then read by Mr. MAJOR:—

"Lake Nyassa, 19th February, 1876.

"MY DEAR SIR,—I have very great pleasure in informing you that our Mission here has hitherto been quite successful, and that everything is going on satisfactorily; the whole of the party is in perfect health. We have a very good station with plenty of provisions, and I have reason to know that our presence here has been the means of doing much good amongst the poor down-trodden people.

"After I had seen everything straight at the Mission Station, houses built, &c., I took four of our party and some negroes, and departed for a cruise round the Lake. The journey occupied us a month. It is a much larger sea than Dr. Livingstone thought; the north end extends to 9° 20′ south latitude. In most parts it is very deep; no bottom could be found with 100 fathoms of line within the same distance from the shore in several places at the north-east, and there is a range of mountains extending nearly 100 miles, ranging from 10,000 to 12,000 feet above the Lake. There are also a great number of rivers running into the Lake, but none navigable for any distance: at the north end there is one running out of the Lake, which the natives call the Revoma. While looking for the mouth of it, bordering on a marsh, we were caught in a tremendous gale of wind; we were compelled to lie-to all night, with both anchors down and steaming ahead at the same time, and being on a lee-shore, short of fuel and provisions, were compelled to get out to sea the first opportunity; in fact, I expected every minute to see her dashed ashore, where we should have been in the hands of the murdering Mizitu tribe; it is true it was the worst time of year for such a voyage. I send a rough sketch-map of the Lake, which will give you some idea of its extent. I propose returning home in a few months, when I will give you full particulars.

"The shores of the Lake are not so thickly populated as formerly, the greater number of the inhabitants having been carried off as slaves. I visited all the Arab slaving-stations, and the very sight of the steamer has struck terror into them; there are five dhows which convey slaves across, and I should think, from all I can gather, not less than 20,000 a year are thus carried off. The population on the south and west is centred round the chiefs, who are employed by the Arabs to make war with the tribes inland to the west, and those that are captured are taken as slaves. I firmly believe that a dozen resolute Englishmen, with a vessel similar to this and some few bales of calico, would put a stop to the whole traffic. I should be delighted to take the dhows at once, but my hands are tied at present.

"The scenery in most parts is grand in the extreme.

"The Arabs were so much astonished and frightened when they heard that the English had come with a steamer, that no slaves were conveyed across for a whole month—a clear proof that they are aware that we can command the Lake. O how I long to have a turn at them, and to clear the bloodthirsty wretches out of this lovely country. The common people are rejoiced at our presence, and for many miles around us slavery has ceased, as there are no Arabs brave enough to come near us.

"There was little rain and there was no rise on the Lake till the middle of January, excepting at the north end, where it rained and blew tremendously.

"At some parts of the Lake there are numbers of villages built on piles in the Lake; many people in other parts are living on barren rocks. They are the few who have escaped in canoes from the slavers. Poor wretches! They are lingering out a miserable existence.

"Should I remain here long enough I will make a more complete survey of the Lake in the season when the weather is more favourable; as it was, we had to lie-to for days and nights riding out storms. The steamer is a splendid sea-boat, steams well and sails fairly, and nothing smaller would be fit to navigate the Lake.

"We visited some lovely spots, and the sites of many villages where the ground was strewn with thousands of skeletons, the remains of poor creatures who were killed in attempting to get away from the slaving wretches.

"E. D. YOUNG."

The REV. HORACE WALLER said the expedition which Mr. Young had undertaken had for its motive power philanthropy in its purest sense. Mr. Young was formerly gunner in her Majesty's service on board the cruiser 'Gorgon,' on the East Coast of Africa. There he first began to see what the slave trade was, and was noted for his activity and zeal in carrying out his duties. He was afterwards selected by his commanding officer as a man likely to be useful in Livingstone's expedition to the Zambesi, and in that capacity he gained the esteem of all the other members of the expedition. Last year he heard that many gentlemen in Scotland wished to do something for the memory of Livingstone, which would be more enduring than a mere monument in Glasgow or Edinburgh, and he was invited as a thoroughly competent man to give them the benefit of his opinion. He spoke at the meetings with a clear know-

ledge of Livingstone's wishes and thoughts, and told them that if they could only launch a steamer on Lake Nyassa they would be doing a great good to Africa and carrying out Livingstone's most cherished desires. Everything went on favourably: men rallied round him who were able to provide the necessary funds, and Mr. Young was the right man to accomplish their object. From what he (Mr. Waller) had seen of expeditions, he had no hesitation in saying that if this Nyassa enterprise had been led by a man less experienced and less beloved by the natives, in all probability it would have added one more to the list of failures. The funds having been raised, Mr. Young applied to Mr. Yarrow, the shipbuilder in the Isle of Dogs, and had a steamer constructed of steel plates, in such form that each section would be a load for a man in carrying the vessel by land past the cataracts of the Shiré; and owing to this arrangement, the difficulties in the way of reaching Lake Nyassa from the sea by river had been overcome. In October last the steamer was successfully put together above the obstructions, and Mr. Young had the satisfaction of launching the first steamer on an African lake. All who were acquainted with Africa, must feel what an important discovery this was. If the slave trade was to be confined within bounds, it must be by the navigation of these lakes. At first sight it might appear that adding an extra hundred miles to the lake was only interesting from a geographical point of view, but many people now indulged the hope that the effect would be that more steamers would soon be found on these African lakes. The southern end of Tanganyika was now shown to approach pretty closely to the northern end of Nyassa, from which there was a clear waterway to the Indian Ocean, with natives willing to help the English in every way, as they had proved by carrying Mr. Young's steamer past the obstructions. Lake Nyassa was at present a no-man's lake, and was the central plague-spot of the slave trade; for in spite of all the treaties, and of the proclamation recently made by Dr. Kirk, unless somebody in the interior worked in accord with him, the treaties were only so much waste paper.

The PRESIDENT said he regarded the launching of Mr. Young's steamer on Lake Nyassa as the beginning of a long series of triumphs for civilisation over barbarism and all the evils that attend the slave trade. There was no reason why there should not be two or three steamers on each of the four great African lakes; and if that were accomplished, and centres of civilising tendency established on the high lands, the conquest of Africa in the spirit of Christian zeal and civilisation would not only be begun, but half over. He then informed the meeting that the King of the Belgians was most anxious to take a leading part in uniting the different Governments and Geographical Societies in an International Congress, the object of which was to consider how the African interior might be thoroughly explored and the country taken possession of, not for territorial aggrandisement, but in order to open up those great waterways to the commerce of the world. He had no doubt that, before many months were passed, great progress would be made in that direction; and he was quite sure the necessary funds and assistance would be given when asked for.

A paper was next read

"ON THE VALLEY OF THE TIBAGY, IN BRAZIL,"

By Mr. T. P. Bigg-Wither, C.E.

The exploration of the Tibagy Valley was commenced by Mr. Bigg-Wither in the month of May, 1874, the little village of Conchas, situated on the banks of the river, at an elevation of about 2400 feet, being taken as the starting-point. One of the principal objects of this exploration was to endeavour to obtain a sufficiently accurate plan and section of the course of the river, in order to form, as it were, the backbone to all other observations, to accomplish which satisfactorily it was necessary to navigate the entire length of the river.

For the first 34 miles, the river pursues an open winding course, with no appreciable variations either in depth or width of channel. The declivity of its bed is here also very slight, and, with the exception of a small cascade, has no other obstructions. It is navigable throughout, even in the driest seasons of the year, for boats or canoes drawing up to 1½ foot of water. The land is not generally fertile, except at some distance from the river, on the north-west slope of the valley, where beds of clay and gravel predominate, and forest commences. This upper portion of the river differs greatly from the section below, namely, that lying between the River Pitangui and the town of Tibagy, a distance of about 30 miles.

Hitherto the river has been winding peacefully along through an elevated and comparatively level plateau; but, as the verge of this plateau is approached, an obstacle is met with which cannot easily be passed. Eventually, however, an outlet is found, and leaving this upper region, the river now enters upon a wild course of headlong and impetuous destruction, tearing its way down a succession of inclined planes, till, after falling 600 feet in the short distance of 30 miles, the town of Tibagy is reached. Here it appears again to have found its proper level, and subsides into its former calm and even flow. The journey over this portion of the river, Mr. Wither describes as exciting in the extreme—the roar of the waters, the shouting of the men as rapid after rapid was shot, in conjunction with the wildness of the surrounding country, producing an impression beyond description.

A remarkable difference was noticed in the relative fertilities of the two parts of the valley above and below the Pitangui River. On the upper plateau the soil was not very fertile, and cattle were never found to fatten well upon its pasture, but in the lower portion cattle thrived, and many kinds of richer grass grew in abundance.

The climate of the whole of the upper part of the valley is temperate. During the months of May and June the nights are generally frosty, but the days are bright and warm. The air is most invigorating, and, contrary to the usually received opinion that the nearer the Equator the greater becomes the necessity for stimulants, on these prairie regions one feels a less craving for them than in higher latitudes, and it is the unanimous opinion of Europeans that the climate ranks second to none in the world.

The population of the town of Tibagy, for a radius of 10 miles round, is about 3000. The people are a mixture of Indian, Negro, and European, are agricultural in their pursuits, and a frugal and contented race. Hospitality is their chief creed, but general laziness both of mind and body is the characteristic of all but the richer class. This bad quality is probably inherent, and is no doubt fostered by the extreme ease with which their livelihood can be obtained.

From Tibagy the journey was resumed by land on the 5th of June, as it was thought wiser to explore the river upwards from Jataky in order to avoid the risk of encountering its many unknown rapids and cataracts. The road, which is merely a mule track, runs along the north side of the valley at some distance from the river. The slope on this side of the valley is very rapid, being from 1200 to 1400 feet above the level of the town of Tibagy. On the other side, the general summit of the watershed has a still higher appearance. On leaving the prairie and entering the forest, the general altitude of the country apparently diminishes, due to the nearer approach of the road to the river. Pine trees, 130 to 140 feet in height, are here the characteristic growth of the forest, at all altitudes above 1600 or 1700 feet above the sea-level; but below this line they suddenly disappear, and more tropical types of vegetation take their place.

At a short distance from the little settlement of Alambary the base of the Apucarana and Agudos Range is reached, and about half way from Alambary and St.

Jeronymo the road crosses the ridge at an elevation of 5400 feet above sea-level, and shortly afterwards emerges out into an open patch of prairie, which here rises up bare and bleak out of the midst of the surrounding forest. A similar patch called the Campo de Inhoho appears a little nearer to the river. As regards the passage of the river through this range, from a point at the southern extremity of the Campo de Inhoho, at an elevation of 3000 feet, a very complete view of the whole of the south-west side of the Tibagy Valley is obtained. This view extends from the range of the Pedra Branca above the town of Tibagy down to and even beyond the valley of the Paranapanéma, and stretches away to the westward where no hills intervene, as far as the eye can reach. This vast tract of rich and fertile country, embracing an area of thousands of square miles, is still covered by virgin forest, and is inhabited only by a few wandering tribes of wild Indians.

On resuming the journey from St. Jeronymo, and after having passed the little river of the same name, the general aspect of the valley once more changes. The abrupt and mountainous region of the Agudos is left behind, or planed down into low undulating hills, and soon the village of Jatahy, with about 450 inhabitants, is reached.

Like most of the smaller Brazilian rivers on the borders of the tropics, the Tibagy is subject to frequent and violent floods, occurring at irregular intervals, by one of which Mr. Wither and his party were detained at Jatahy for twenty-three days, when, the floods having abated, the journey was again resumed.

On the morning of the 20th of August, nearly a month after their departure from Jatahy, and while they were beginning to congratulate themselves that the worst of the journey was over, they observed, when rounding a slight bend of the river, stretching across its whole breadth, and piled up, tier above tier, to a height of more than a hundred feet, a mighty barrier of rock and foam, waterfall and cataract, mingled together in wild confusion. This obstruction proved to be 114 feet high and about half-a-mile in length. Both flanks were guarded by perpendicular walls of basalt, nearly 200 feet in height, and offered no alternative for the passage of canoes otherwise than by making a long detour through the forest, which accordingly had to be done; and a timber road of a mile-and-a-half in length was constructed round the falls, and the canoes dragged over it, and again launched on the river above.

On the 1st of September they reached the river of Imbazinho, and on the 8th of the same month the town of Tibagy, having successfully accomplished a journey till then considered almost impossible.

In conclusion, Mr. Wither states that one more has been added to the list of Brazilian rivers, and small and insignificant as the valley appears on the map of Brazil, yet, from its position, connecting the great navigable water system of the Paranapanéma, Paraná, Ivinhema, and Brilliante, with one of the best harbours on the east coast, it is of greater importance than many a larger and richer valley. It possesses every variety of climate, and is suitable for the cultivation of all kinds of vegetable produce. It has its rich pastures for the breeding of cattle, and water and timber abound everywhere. Of all parts of the province of Paraná, the district of Tibagy was the most suitable for the formation of an English colony, and the attempt to colonise Assungui should be abandoned, and the colony transferred to the neighbourhood of Tibagy.

Mr. EDWARDS said he had been employed in the exploration of the line of the Paraná and Matacrosa Rivers, and could bear testimony to the excellent description which Mr. Wither had given of the natural features of the country. Unfortunately a great obstacle existed to the navigation between the River Plata and the upper tributaries of the Paraná, namely, the Falls of the Paraná below the mouth of the Ivahy. Just above the Falls the river was 4 miles wide, and at the Falls suddenly contracted to rather less than 70 yards, the waters precipitating themselves in a cascade about 90 feet in height. Above the Falls the river had been proved to be navigable for some distance north of the mouths both of the Ivahy and the Tibagy.

The PRESIDENT believed it to be desirable that geographical exploration should always precede colonisation. If some such explorer as Mr. Bigg-Wither had examined the country earlier, a colony would certainly not have been formed in a primeval forest instead of on the banks of a river near to some place where a market could be found for their labour. He trusted that in future, whenever there was a question of fixing a colony in South America or Africa, some scientific explorer would lead the way. Grievous mistakes, which might cost many lives and break up many homes, as they had done before, would then be avoided. It appeared from Mr. Wither's paper that three races were mingled together in Southern Brazil, and it did not seem to be a happy mixture. The chief value of the paper was as showing how continually extended was the application of geographical discovery to all the great purposes of humanity and civilisation. It not only opened a way for commerce and for roads to be made, but it showed where the civilised portion of the race might best make their way into the primeval regions.

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PARIS GEOGRAPHICAL SOCIETY.

May 5th, 1876.—M. MALTE-BRUN in the chair. The President communicated to the Society several letters which referred to Lieutenant Cameron's African Exploration. The Secretary of the Belgian *Académie d'Archéologie* writes to state that they offer prizes of 20*l.* each for a *Life of Ortelius*, and a *History of the Commercial Relations of Flanders with Africa during the Middle Ages*. The essays must be written in French, and must be sent in before the 1st of April, 1877. The Minister of Foreign Affairs informed the Society that M. Verchère had been charged with an examination of the projects hitherto published for the formation of an interoceanic ship-canal in Central America. M. L. ESTOUGIES writes to say that he and M. Sylvain Jacquemin are about to proceed to the Transvaal Republic on a scientific mission entrusted to them by the Belgian Government. A *resumé* of M. CH. WIENER'S archæological explorations in South America was read. This traveller had been received most graciously by the Emperor of the Brazils, at whose desire he had examined the Sambaquio (shell-heaps) on the island of Santa Catarina. He had then visited Chili, where he discovered a large rock, covered with inscriptions, and on the plain near it a large number of split stones, which appeared to have been thrown from slings. Human skeletons had been found at the foot of the rock, and M. Wiener was of opinion that this inscribed rock marked the site of a battle. From Chili M. Wiener proceeded to Peru. M. de Quatrefages is of opinion that the shell-heaps examined by M. Wiener were formed by the waves of the ocean, and that the man, whose skeleton was found in them, was buried there. A letter from Dr. BROCH contained interesting details on the scientific exploration of the Norwegian Seas and the Northern Atlantic, which is to be carried out under the auspices of the Norwegian Government.

M. DAUBREE furnished some details on Professor Nordenskiold's proposed expedition to the Yenisei.

M. SIMONIN furnished some information on the International Exhibition of Philadelphia, which he was about to visit as one of the French delegates.

M. HENRY DUVEYRIER read a paper on the ancient sculptures discovered by the rabbi Mordokhai during his recent visit to the province of Sus, in Southern Morocco.

May 17th, 1876.—M. MALTE-BRUN in the chair. A letter from Captain ROUDAIRE was read, in which he reported on the progress made by the expedition directed by him, for carrying a line of levels from the Gulf of Gabes to the Sebkha in Southern Algeria. The members of the expedition arrived at Gabes on the 28th of February, and immediately started for the interior. They underwent unusual privations, owing, principally, to the heat and to their distance from a base of supplies, and suffered much from musquitoes, but finally reached the bench-marks on the frontier of Algeria. It results from this exploration that a canal, 13 miles in length, would connect the Mediterranean with the proposed inland-sea; that the latter would be 170 miles in length, and between 50 and 89 feet in depth, and cover an area of 6250 square miles.

Dr. HARMAND writes from Cochin China that he had prepared a map of that country, which, together with an account of his exploratory journeys, would be forwarded by him to the Society (since received). He found that the Rule-Repan could not be utilised for turning the rapids of the Mekong, but thought this would not much matter, as the Laos were a savage people, who had nothing to export. The most important results of his journey consisted in a visit to the country of the Kuys, a primitive race. He had likewise copied many inscriptions met with at Buthey, Kahet, and elsewhere, and collected specimens of plants, birds, and other animals.

M. WIENER reports from Pachacamac that he has discovered glaciers in the Andes of Chili, the existence of which had been denied by Agassiz and others. The most extensive of these occupied the bottom of the Cajon de los Cypreses, at about a league from the Lake of Agua Vida. The Cypres and Cortaderal rivulets rose from it. Glaciers are locally known there as Bancos de Nieve.

The SECRETARY read letters from Rear-Admiral Davis and Professor Nourse, containing information with reference to certain geographical objects which it was proposed to exhibit at Philadelphia. Amongst others there would be found there the small steam-sloop 'Juniaka,' a sledge made by Joe, the Eskimo, and similar to that employed by Hall; the flag of the 'Advance;' the boat in which the survivors of the 'Polaris' were saved; and several relics of Kane, Hayes, and Hall.

The SECRETARY announced that Count Marescalchi was about to start upon a journey round the world, which would occupy about two years, and M. BRAU DE SAINT-POL-LIAS said that a similar enterprise would be undertaken by Count Tyszkiewicz, who had had a sailing-yacht built for that purpose at Havre.

M. PAQUIER then read a paper on the progress of Russian and English exploration in Central Asia, dwelling particularly upon the great services rendered by the native explorers trained in India.

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PARIS COMMISSION OF COMMERCIAL GEOGRAPHY.

15th May, 1876.—M. MEURAND in the chair. A letter from General Chanzy, the Governor-General of Algeria, was read, in which he acknowledged the receipt of a report on the proposed colonies of foundlings. He thought it would be difficult to find cultivable plots of land in Algeria of the extent required in the report, but promised to look into the matter. It would be necessary, above all things, to obtain the funds required for carrying out this project.

The PRESIDENT then read a letter received from the President of the Executive Committee of the Paris Geographical Society. The Commission of Commercial Geography had been established as a branch of the Society, but as it admitted members, who were not also members of the Society, and had introduced a special rate of subscription, he thought it advisable that they should separate. The meeting concurred in this view, and the proposed rules of a 'Society of Commercial Geography' were read. The new Society is to consist of ordinary and corresponding members, of whom the former are to pay an annual subscription of 20 frcs. Branch societies may be established in the provinces, in the colonies, and even in foreign countries. There are to be four sections (Education, Travels, Commerce and Industry, and Colonisation).

22nd May.—M. MEURAND in the chair. The 'Society of Commercial Geography' was formally constituted, and a committee appointed to report on the proposed rules.

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VIENNA GEOGRAPHICAL SOCIETY.

May 23rd, 1876.—Dr. VON HOCHSTETTER in the chair. The PRESIDENT read the letters which had been received. Dr. Richard Drasche Von Wartinberg is continuing his geological exploration of the Philippines. He has already visited the district of Banguet, the copper mines of Mancayan, Cayan, and Bontok. From the latter place he penetrated into the districts of the notorious "decapitators" of Memit, Sacasaca, and Sadanga. There are boiling springs there, similar to those of Karlsbad. The main cordillera of the districts visited consists of syenitic rocks; the plateaux, whose average height is 3500 feet, are trachytic. Coral reefs, abounding in recent fossils, are met with at an elevation of 4500 feet, in a line extending from north to south, and their existence prove a recent upheaval of Luzon to the extent of 4000 feet. Solfataras and hot springs abound.

The progress of GORDON PASHA on the Upper Nile formed the subject of a *resumé*, based upon information received from Egypt. Gordon had succeeded in penetrating to M'ruli (on the Somerset). and had established a station at Masindi, the capital of Unyoro. Kaba-Rega, the king of that country, had fled, and his co-regent, Aufina, who entertained friendly feelings towards Egypt, was appointed his successor. He, as well as Rionga, the present chief of M'ruli, acknowledged themselves Egyptian vassals. Military posts have likewise been established at Urondogani and Magango, on the Albert Nyanza.

Herr ERNST MARNO then reported, in person, on his last journey in Africa. He had arrived at Alexandria on the 22nd of October, 1874. On the 31st of December he reached Lado, where he met with a friendly reception from Colonel Gordon. Plans for exploring the Albert Nyanza were discussed, but they were never carried out, and he felt constrained to return to Khartum, after he had visited only Regaf, Mundo, and Makraka. On the 26th of July he had again left Khartum, it having been his intention to penetrate into Dar Fur, but on reaching el Obeid, the capital of Kordofan, the desired permission to continue his journey was refused him. He applied to the Khedive, and meanwhile explored a large portion of Kordofan, travelling about 1100 miles in sixty days. The answer to his application being unfavourable, he returned to Khartum and Europe, the main objects of his journey—the exploration of the Albert Nyanza and of Dar Fur—unachieved.

Herr J. R. LORENZ then read a paper on the "Industrial Districts" of Austro-Hungary, and Professor F. SIMONY exhibited and explained the photographical surveys which he had made in the Dachstein Mountain group.

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April 25th, 1876.—Dr. VON HOCHSTETTER in the chair. The PRESIDENT communicated letters announcing the formation of a Geographical Society and of a Geographical Department in connection with the Admiralty at Lisbon. He announced that Captain Allen Young had invited Lieutenant Becker, of the

Austrian navy, to accompany him in his next cruise in the 'Pandora.' As an acknowledgment of this attention shown to one of their members, he proposed that they should add Captain Allen Young's name to the list of their corresponding members. This proposition was adopted unanimously.

Baron SCHWEIGER LERCHENFELD then gave a description of modern Bagdad.

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ITALIAN GEOGRAPHICAL SOCIETY.

May 14th, 1876.—Signor CORRENTI in the chair. Signor CAMPERIO read a letter which had been received from Colonel Gordon, and contained interesting information with respect to the Upper Nile.

Professor PIGORINI then described a collection of native weapons which had been forwarded to the Society from Australia by Signor Marinucci. These weapons will be deposited in the Anthropological Museum founded by the Society, which already contains a valuable collection.

A paper by Signor Camperio, on the Upper Nile, led to an animated discussion, in which M. GUIDO CORA, and others took part. Signor Cora could not agree with Baker when he described the Albert Nyanza as the principal reservoir of the Nile. The information communicated by Gordon and others did not prove that the Somerset Nile discharged its waters into the Albert Nyanza. Signor Camperio said that Colonel Gordon and the officers with him appeared to assume as a fact that the river, which took its rise in the Victoria Nyanza, actually passed through the Albert Nyanza, and not to the east of it. Professor UZIELLI said the arguments brought forward by Signor Cora did not differ materially from those of Dr. Schweinfurth, who considered that the supposed connection between the Nile and the Albert Nyanza had not yet been established conclusively. That lake might possibly turn out to be a sort of backwater of the Nile.

The PRESIDENT announced that the Society was about to move to the Collegio Romano, where Government had united the principal scientific establishments of the capital, including a library, an educational museum, &c.

In conclusion, Chevalier P. CORTE pronounced an eulogy on the late Chevalier Pescetto, editor of the *Rivista maritime*.

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EGYPTIAN GEOGRAPHICAL SOCIETY.

April 21st, 1876.—General STONE in the chair.

Colonel COLSTON read a paper on the Bedwin tribes of the Sudan and Kordofan. They differed essentially from the inhabitants dwelling along the banks of the Nile, and spoke a language altogether different from that of the Arabs. They were sober, proud of carrying arms, and looked upon manual labour as dishonourable. Formerly war was the rule amongst them, but at present they were disposed peaceably. The Kababish whom he had seen in Kordofan were a fine race of men, and many of their women had agreeable features. They wore no veils and were naked down to the waist. They conversed freely with the soldiers of his expeditionary force, but in spite of the liberty they enjoyed, were strictly virtuous. The Ababde, Bisharin, and Kababish wore no head-dress, but the two former dressed their hair in such a way as to offer some protection against the rays of the sun. The Kababish, on the other hand, shaved their heads. At el Obeid he had seen many Bazaras, who came to that town on their riding oxen, and armed with lances. They were reported to be a predatory tribe.

M. DE COMPIEGNE said that Colonel Colston's paper was one of value, as it was based upon observations made on the spot. He then read a paper on "Pigmies in Central Africa." M. Mariette had recently pointed out to him a bas-relief in a sepulchre of the Necropolis of Saggarah, dating from the fifth dynasty, upon which were represented two dwarfs or pigmies, whose features resembled those existing amongst the Akka or Tiki Tiki. The existence of pigmies in Central Africa had been believed in by the writers of antiquity, and their existence had recently been proved by Du Chaillu, Schweinfurth, Miani and others, and they extended probably from the South of Mombuttu as far as the Gabun.

M. MARIETTE BEY said that dwarfs were met with frequently in Egypt, but not as members of a particular race. At the same time dwarfs played an important part in the religion of Egypt. The dwarfs of mythology, if he might thus express himself, were the Bess, called Typhons by the merchants of antiquity. They were represented as squat men, with short legs, a curly beard, and a yellow complexion. This colour indicated an Asiatic origin. The Bess were in fact introduced from Phenice, and their images were placed at the prow of Phenician vessels. They were natives of Pun, which was close to Tonutes or the "Holy Land." Pun he identified with the Somali country, near which was Sokotra, called the "holy" or "divine," because it was the reputed birthplace of Osiris. The Phenicians had originally came from this country of Pun, and were not an Asiatic race at all. Near them dwelt the Bess, a race of dwarfs, who still existed in the Somali country, if the information collected by Heuglin could be trusted. Amongst the images of Bess, which he exhibited to the meeting, there were several with a tail, and this accounts for the myth of the men with tails, or Niam Niam, amongst whom the Akkas were found. He felt certain that the Niam Niam were known to the ancient Egyptians. Nam, in their language, meant dwarf. In one of the three last chapters of the Egyptian Ritual likewise reference was made to dwarfs, called Nemma or Nem Nem. M. MARIETTE then exhibited the copy of a bas-relief upon which were represented a queen and her daughter, from Avalis (the modern Zeila), who exhibited the features of the modern Akka.

M. DE COMPIEGNE then read a paper by Herr von Heuglin, which treated on the country about Tajura and Zeila, recently annexed to Egypt.

In conclusion, a letter from Lieutenant L. CAMERON was read, in which that explorer developed his idea of a Central Africa Railway, which would connect Zanzibar with the Congo. The palm oil, ivory, gold, silver, &c., which could be exported from Africa, the writer considered would amply cover the cost of this vast enterprise.

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Census of British Isles, 1871.
MIGRATION
within the limits of
ENGLAND & WALES, SCOTLAND, IRELAND & THE ISLANDS IN THE BRITISH SEAS:
Of the Persons born in each County there are living in other Counties of the same Kingdom:
0 - 10 per Cent.
10 - 15 .
15 - 20 .
20 - 25 .
25 - 30 .
30 - 35 .
35 - 40 .
over 40 per Cent.
SHETLAND ISLANDS
CHANNEL ISLANDS
Guernsey
Jersey
FRANCE
ORKNEY IS
SUTHERLAND
CAITHNESS
ROSS & CROMARTY
INVERNESS
ELGIN
BANFF
ABERDEEN
FORFAR
PERTH
ARGYLL
STIRLING
KINROSS
FIFE
CLACKMANNAN
KINROSS
HADDINGTON
EDINBURGH
BERWICK
LANARK
RENFREW
AYR
WIGTOWN
KIRKCUDBRIGHT
DUMFRIES
ROXBURGH
NORTHUMBERLAND
CUMBERLAND
DURHAM
WESTMORELAND
I. OF MAN
YORKSHIRE
LANCASHIRE
CHESHIRE
DENBIGH
FLINT
CARNARVON
ANGLESEY
MERIONETH
MONTGOMERY
SALOP
STAFFORD
WARWICK
WORCESTER
HEREFORD
RADNOR
BRECON
CARMARTHEN
PEMBROKE
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HERTS
ESSEX
SUFFOLK
NORFOLK
CAMBRIDGE
HUNTS
NORTHAMPTON
LEICESTER
RUTLAND
NOTTS
LINCOLN
DERBY
WILTS
SOMERSET
DEVON
CORNWALL
DORSET
HANTS
SURREY
KENT
SUSSEX
DONEGAL
LONDONDERRY
ANTRIM
TYRONE
FERMANAGH
DOWN
ARMAGH
MONAGHAN
CAVAN
LOUTH
SLIGO
LEITRIM
ROSCOMMON
LONGFORD
WESTMEATH
MEATH
KING'S
QUEEN'S
KILDARE
WICKLOW
CARLOW
WEXFORD
WATERFORD
TIPPERARY
LIMERICK
CLARE
GALWAY
MAYO
KERRY
CORK
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Drogheda
Dublin
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Cork
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Sheffield
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Bradford
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Hull
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Nottingham
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Derby
Leicester
Norwich
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Stockport
Macclesfield
Chester
Stoke
Shrewsbury
Oxford
Gloucester
Bristol
Bath
Reading
Maidstone
Canterbury
Brighton
Southampton
Portsmouth
Winchester
Salisbury
Exeter
Plymouth
Dorchester
Ipswich
Colchester
Cambridge
Bury St Edmunds
Aberdeen
Dundee
Arbroath
Montrose
Perth
Stirling
Kirkcaldy
Dunfermline
Edinburgh
Glasgow
Greenock
Paisley
Ayr
Hawick
Dumfries
Carlisle
Newcastle
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Sunderland
Durham
Middlesbrough
Barrow
Lancaster
Inverness
Lewis
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